

AMERICAN ARTISAN

APRIL 1957

..The Magazine of

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING



DUCT TOWERS rise from curtain wall fan rooms on Chicago's 43-story Field building for "world's biggest" conversion to year 'round air conditioning . 86

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"Don't forget
this
Field Control, lad.
No heating plant
works its best
without
one"

Every day, new-comers to the heating business are being taught an old lesson: That there is no substitute for good workmanship or good products. And for a score of years dealers have numbered Field Draft Controls among the products that are good, and for which there is no substitute. We are proud to have earned the good will of so many dealers for so many years.



You have put your faith in **field** more than 15,000,000 times



FIELD CONTROL DIVISION of H. D. CONKEY & COMPANY, MENDOTA, ILLINOIS
Affiliates: CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists
REPRESENTED IN CANADA BY ONTOR LABORATORY LTD., 111 TYCOS DRIVE, TORONTO 10, ONTARIO



You get more out
when you put this filter in

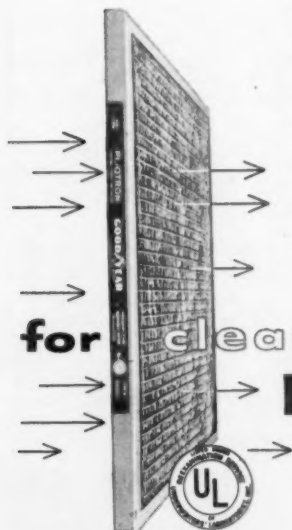
You sell a lot more than solid satisfaction in PLIOTRON installations. Rare are the profit-eating "call-backs" for adjustment. Almost invariably you'll be in for some repeat business. And the way satisfied customers tell others about these super-filters, you'll often collect from some of their friends as well.

For filter-users really appreciate the way PLIOTRON units outperform ordinary air filters. Because they're not just surface loaders—but depth-loaders—they capture up to 5 times as many fine dirt particles as ordinary filters. They serve far longer before

they're loaded. Even then, a quick bath restores them to full efficiency.

Standout performance like this—eliminating filter troubles long common in many homes, offices, stores and plants—has meant a rapidly growing popularity for PLIOTRON filters. And naturally, a lot of this popularity rubs off on the men who have these filters to install.

So make sure you collect in full—and keep collecting—on every new-filter job. Just recommend and install PLIOTRON filters—every time. For details, write Goodyear, P. O. Box 288, Akron, Ohio.



for cleaner air everywhere—

PLIOTRON AIR FILTER BY

GOOD YEAR

THE GREATEST NAME IN RUBBER

Pliotron—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

AMERICAN ARTISAN

APRIL 1957

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WARM AIR HEATING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

Editorial Director—C. M. BURNAM JR.

EDITOR

CLYDE M. BARNES

ASSOCIATE EDITORS

PHILIP D. WARD

W. DANIEL WEFLER

ASSISTANT EDITOR

H. C. LENNARTSON

ADVERTISING STAFF

WALLACE J. OSBORN

ROBERT J. OSBORN

New York City

MURRAY HILL 9-8293

ROBERT A. JACK

DAVID V. MAHAN

Cleveland

SUPERIOR 1-1291

GEORGE C. CUTLER

THOMAS V. JOHNSON

Chicago

STATE 2-6916

JAMES D. THOMAS

Tucson

6-3698

BOB WETTSTEIN

Los Angeles—DUNKIRK 8-2286

San Francisco—YUKON 6-2522

Portland—CAPITOL 8-4107

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President and General Manager—
CHARLES E. PRICE

Sales Promotion Manager—JOHN H. REOCK
Production Manager—L. A. DOYLE
Circulation Director—FRANK S. EASTER



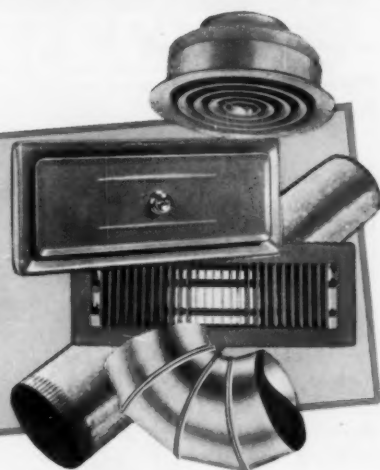
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DISTRIBUTORS - WHOLESALERS

Don't forget...

A MINIMUM INVESTMENT
OF MONEY AND SPACE
PUTS YOU IN BUSINESS WITH
CHAR-GALE



HERE'S HOW!

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YOU GET...



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YOU SELL...



40 JOBS

Just \$4,000 and 300 square feet of warehouse space are enough to start a profitable increase in your business with the Char-Gale air distribution system. Immediately, with no big commitment on your part, you're in a position to offer your dealers the *finest* complete, simplified air distribution system on the market, for heating or cooling.

A Char-Gale truck will bring *all* the elements of THE Char-Gale "Gale-Aire" comfort air distribution system *direct to your door*, in *one* convenient delivery. You don't have to be concerned about matching units from different sources, or hoping to coordinate a series of deliveries, because *it's all there*, in ONE CONVENIENT LOAD. Even after Char-Gale becomes a big part of your business, you can keep inventories down, because Char-Gale trucks travel anywhere in the country in a hurry. And you get truckload discounts on *any combination* of Char-Gale equipment.

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**SEND FOR THIS NEW
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As you can see, it's not necessary to tie up your capital in large inventories of duct, fittings and registers. By stocking the simplified "Gale-Aire" system, you and your dealers get a complete air distribution line for either heating or cooling, that's easy to store, sell and install.

For further information, write us, today!

Char-Gale

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ANOKA, MINNESOTA

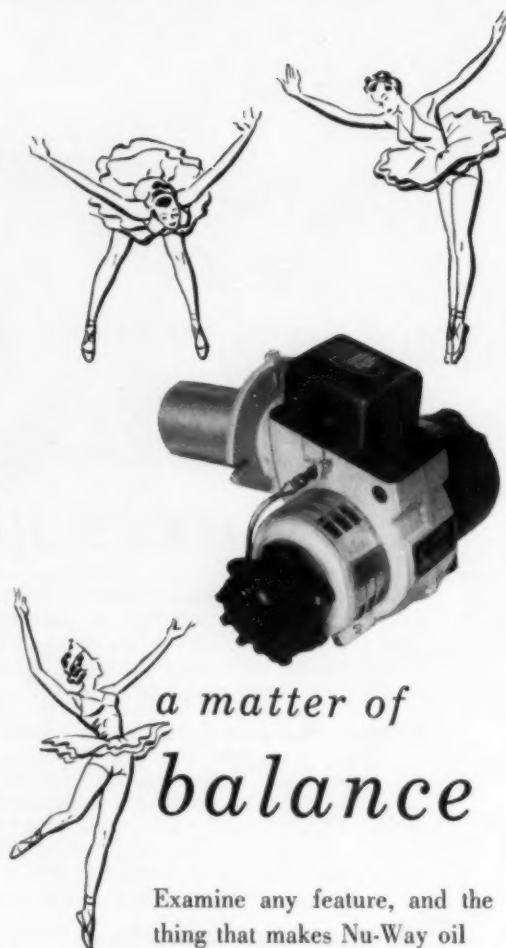
the editor's notebook

Thumbing Through This Month's Artisan

... we salute the sheet metal contracting industry in general, and the R. B. Hayward Co. in particular, in a report on how the *Biggest Conversion Job Calls for 2 1/2 Million Pounds of Sheet Metal*. We look over the shoulders of architects, engineers, draftsmen, field and shop sheet metal men to observe how they overcome problems one by one in order to provide year 'round comfort for 816,000 sq ft in Chicago's huge Field building — probably the biggest single conversion of any office building yet undertaken at one time. We see how all available space — elevator shafts, building setbacks and building corridors and offices — is utilized to provide properly mixed heated and cooled air to tenant areas the year around.

Multi-Level

... and we launch into a series of articles analyzing the cooling problems inherent in modern architectural trends, as we follow the NWAHACA Mobile Laboratory into a typical home where the first *Split Level Cooling Test Spotlights Duct Heat Gain*. Conducted on the heels of earlier tests directed at heating problems, the investigation was based on two known facts: 1) duct heat gain in rooms distant from the cooling unit increases air flow requirements and causes marked reduction in cooling performance; 2) improper mixing of cooled air with the warmer room air causes stratification and downward drifting of cool air. We follow the test procedures through five days in a tri-level home and we note



Examine any feature, and the thing that makes Nu-Way oil burners really *different* is balance! Start right with Nu-Way's balanced line ... its wide selection of burners adaptable to the needs of the heating industry.

Check Nu-Way's balanced flame shape, with air handling parts that adjust to every kind of fire box. Balanced air-oil mix for clean, efficient combustion. Nu-Way's balanced motor and fan rotor, to assure quiet operation, long life. Yes, balance makes the difference.

Nu-Way
CORPORATION
ROCK ISLAND, ILLINOIS

the editor's notebook

(continued)

some patterns beginning to unfold which will be borne out in later reports in the series.

Promotion

... and we are reminded that we can *Get the Jump on the Cooling Season* by tying in our sales promotion with the Operation Home Improvement campaign during May, which has been proclaimed Better Your Living Month. We see in this campaign an excellent opportunity to recall publicly the unnecessary discomforts homeowners experienced last summer, and to guarantee cool, restful nights, clean homes and comfortable working conditions to a public which is being conditioned to better living by the flood of ohi promotion. We get some interesting pointers on how to tie in with the program through newspaper ads, home shows, home clinics, demonstration homes, contests and surveys, and we are told how to get aboard the ohi promotion bandwagon.

Humidity

... we find out *How to Control Excess Humidity* and condensation in homes — a problem which usually ends up in the heating dealer's lap. Author Clarence L. Grandstaff points out that water vapor comprises a large percentage of the products of combustion and tells how to make sure this moisture, as well as that which enters the indoor air from structural components, is effectively vented to the outdoors before condensation occurs. We also welcome some recommendations on providing vapor barriers,

3

reasons for
buying a

LOCKFORMER

1. IT MAKES MONEY... FASTER
2. IT MAKES MONEY... EASIER
3. IT MAKES MONEY...
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Don't wait to be called by a quiz show. Send the coupon and be *sure* of knowing the money-winning answers.



One man with a Lockformer makes more Pittsburgh Locks than 16 men with 8 brakes.

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THE LOCKFORMER CO.

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Send me (no charge) a new catalog.

Name

Address

City Zone State

the editor's notebook

(continued)

introducing outdoor air and testing for presence of excess vapor.

Why Not Tell Employees About Your Profits?

I BELIEVE that the National Chamber of Commerce has a point in its approach toward telling employees about company operations and plans. The chamber has prepared a booklet entitled "Better Business Relations through Employee Annual Reports." The report states, "Business firms should be proud of profits and explain them clearly and fully to employees."

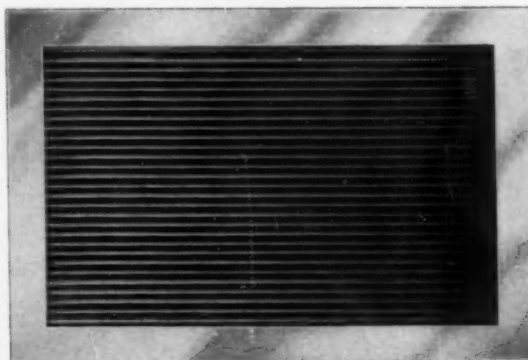
In one of 30 suggestions on how to prepare an effective annual report for employees, the publication advises: "Don't try to conceal profits. Don't back away from a mention of profits. There is nothing to be ashamed of — the shame lies in not making any. If you need to clarify the meaning of profits (and you probably do), clarify it in an important place where everybody can read it."

Study Shows National Salary Rise of 5.9%

HOW MUCH did your salary increase this year? Did it follow the national trend of 5.9 percent? This was the figure determined by the seventh annual survey of the Executive Compensation Service of the American Management Association. The study analyzes the compensation (including salaries, bonuses, and company contributions to retirement funds) paid to more than 28,000 executives in more than 3300 companies.

Also it's interesting to note that average weekly earnings of production workers in all manufacturing industries, as reported by the Bureau of Labor Statistics, also in-

ALL NEW! ALL ALUMINUM! ALL EXCLUSIVE!



New A-J All-Aluminum No-Vision Grille

Another first in the field for A-J! This new extruded all-aluminum no-vision grille is the first of its kind . . . a grille that offers exclusive quality features never before available!

Imagine the beauty of this all-aluminum construction. Picture how its striking, modern look blends so perfectly with contemporary interior designs. Think of the ease of upkeep — corrosion and rust can never detract from its lifetime beauty. Because of the lightweight characteristics of aluminum, this new A-J Grille provides maximum free area (approximately 70%) with minimum weight.

The entire unit reflects quality in every detail of its construction. The extruded V-bars (of .044 aluminum) are spaced three to the inch, making the grille completely sight-proof. The "B" frame (.050 aluminum) has perfectly mitered corners which are securely fastened and locked mechanically — there's no surface blemish to mar its attractive appearance. Rims have countersunk screw holes for fastening to door or partition. Fastening screws are furnished with each unit. By utilizing an auxiliary frame (also of extruded aluminum) the grille span can be adjusted from 1 1/4" to 2 1/8" in depth.

CHOICE OF FINISHES

Standard mill finish is provided unless otherwise specified. Anodized or polished finishes are available. If non-standard finishes are desired, please consult the factory for prices.

NOTE: the new A-J Aluminum Grille is also available with an "A" style channel frame of .050 sheet aluminum. If ordered in this manner, installer provides molding or stops.

This new A-J Grille is produced in standard sizes. For more information write A-J Manufacturing Company, Dept. A-4, 3601 E. 18th St., Kansas City 27, Mo.

FREE CATALOG

Listing, describing and pricing
1,000 types and sizes of grilles,
registers, etc.

A-J Manufacturing Co.

Dept. A-4

3601 E. 18th St., Kansas City, 27, Mo.

the editor's notebook

(continued)

creased by 5.9 percent between January 1955 and January 1956. Corresponding average increases in annual compensation for the other groups whose pay is studied by the Executive Compensation Service were as follows: for middle management, 5 percent; for sales personnel, 3.5 percent and for engineers, and other administrative and technical personnel, 8.6 percent.

Film Strips Prove Effective Training Aid

THE ACCEPTANCE of film strips as teaching and selling aids is growing more rapidly each year. The Oil Heat Institute's Distribution Division has set up a library where the film strips may be rented or copies purchased. There are now seven films in the library with three more pledged by manufacturers. The effectiveness of this program as an educational medium is demonstrated by the fact that over 50 copies of the film strip on Nozzle Servicing and Operation have been purchased in the past four months. Preliminary investigation shows that each of these strips has been shown to date on an average of seven times to an average 75 dealers per showing. This means that close to 3000 individual, dealer personnel have been reached by this strip. With approximately 30,000 service and installation men scattered throughout the country, it is obvious already that an excellent educational job is being done.

Sees Growing Shortage Of Skilled Employees

HIGHLY SKILLED employees are going to be more difficult to obtain during the next 10 years according to a projected



**THE ORIGINAL K-3H
AN INDUSTRY FIRST
IN 1945**



ACTUAL SIZE 1/2" ips
*Interchangeable
in manifolding
with B-50, B-60, K-3A Valves

SILENT, SERVICE-FREE AND GAS-SEALED —

THE NEW *and improved* K-3H

THE INDUSTRY'S FINEST SOLENOID GAS VALVE!

If solenoid's the choice, General Controls *new* K-3H* is the answer!
It's the finest solenoid gas valve offered to the gas industry.
Developed originally, and field-proved by General Controls since 1945, the
hermetically-sealed, silent solenoid operator eliminates all moving parts
from the gas stream...guarantees long life and trouble-free valve
operation. High in gas capacity and *more compact* in size, the K-3H stands
out as the industry's new standard for a better solenoid gas valve.
Write, wire or phone your nearest General Controls representative today.
He has the story for you on this sensational new gas valve.



GENERAL CONTROLS

America's Finest Automatic Controls for Home, Industry, and the Military
Glendale, California • Skokie, Illinois

Five Plants — 40 factory branch offices serving the United States and Canada

the editor's notebook

(continued)

survey conducted by the B. F. Goodrich Co. The outlook for trained engineers and scientists indicated a shortage of about 100,000 by 1957. The efforts that will be made to influence those engineers available will put a premium on the number available. Now is a good time for every facet of the industry to look to its future needs and start training programs that will provide the trained men needed to sell and engineer the many millions of cooling systems that will be sold during this decade.

Hay Fever Sufferers All Cooling Prospects

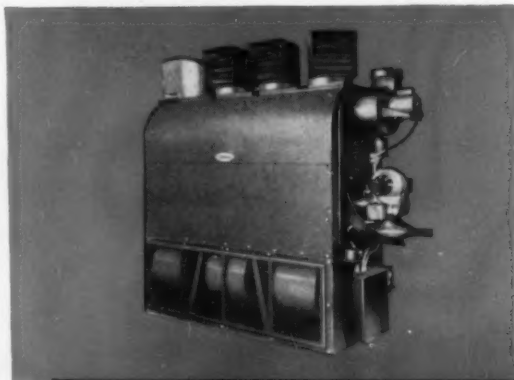
DID YOU KNOW that it is estimated that over 10,000,000 people suffer from hay fever? This means that there are as many prospects for central cooling systems as there are hay fever sufferers and that each of these prospects is also a prospect for an electrostatic air filter. A laboratory test conducted by Orren D. Chapman, professor of bacteriology, New York State University, Syracuse, showed that a summer air conditioning system reduced the amount of pollen contained in outside air at the height of the ragweed season by 98 percent.

Needless to say, the relief experienced by hay fever sufferers is only one of the many benefits enjoyed by those with central cooling systems in their homes. The escape from high humidities and temperatures results in a comfortable and happy family environment.

Market Growing for Large Duct Systems

THE POSITION of the industrial sheet metal shop grows

CARRIER ANNOUNCES A NEW SOURCE OF LOW-COST HEAT



**Heat Diffusers, Direct Fired,
a complete heating system
in a single package**

Here from Carrier is a new source of low-cost heat for stores, garages, schools, factories, churches, warehouses: Heat Diffusers, Direct Fired, for use with gas or oil.

These compact Heat Diffusers are completely self-contained: a stainless-steel combustion chamber, burner, heat interchanger, air handling equipment and controls are all assembled in a single casing.

They cut heating costs three ways:

1. They cost less to own because they do the job of several smaller type units.
2. They cost less to install because no central boiler is required, saving piping costs.
3. They cost less to operate because of their high efficiency—at least 80% of the fuel consumed is converted into usable heat.

Further advantages are great flexibility and ease of installation. They can be floor mounted, ceiling mounted, wall mounted, or installed with ducts. They are pre-wired and factory-fired; when electrical and fuel connections are made and the stack vented, a unit is ready to operate. Available in 10 sizes, 300,000 to 2,000,000 Btu's.

For your copy of a new bulletin describing this new heater in detail, call the Carrier Manufacturer's Agent listed in your Classified Telephone Directory under "Heaters—Unit." Or write Carrier Corporation, Dept. UH, Syracuse, New York.

Carrier

industrial heating • air conditioning • refrigeration

the editor's notebook

(continued)

stronger with each passing year. The market for duct systems in multi-storied buildings is growing and according to D. C. Minard, president, Trane Co., the market for factories is just getting started. Mr. Minard estimates that less than one percent of the factory space in the United States has been summer air conditioned and that there is a market trend toward installing cooling systems in factories. Air volumes for industrial applications vary with the heat load created by the mechanical equipment used. I expect to see some very interesting duct systems installed within the next few years and will, of course, keep you informed on how they are being engineered and installed.

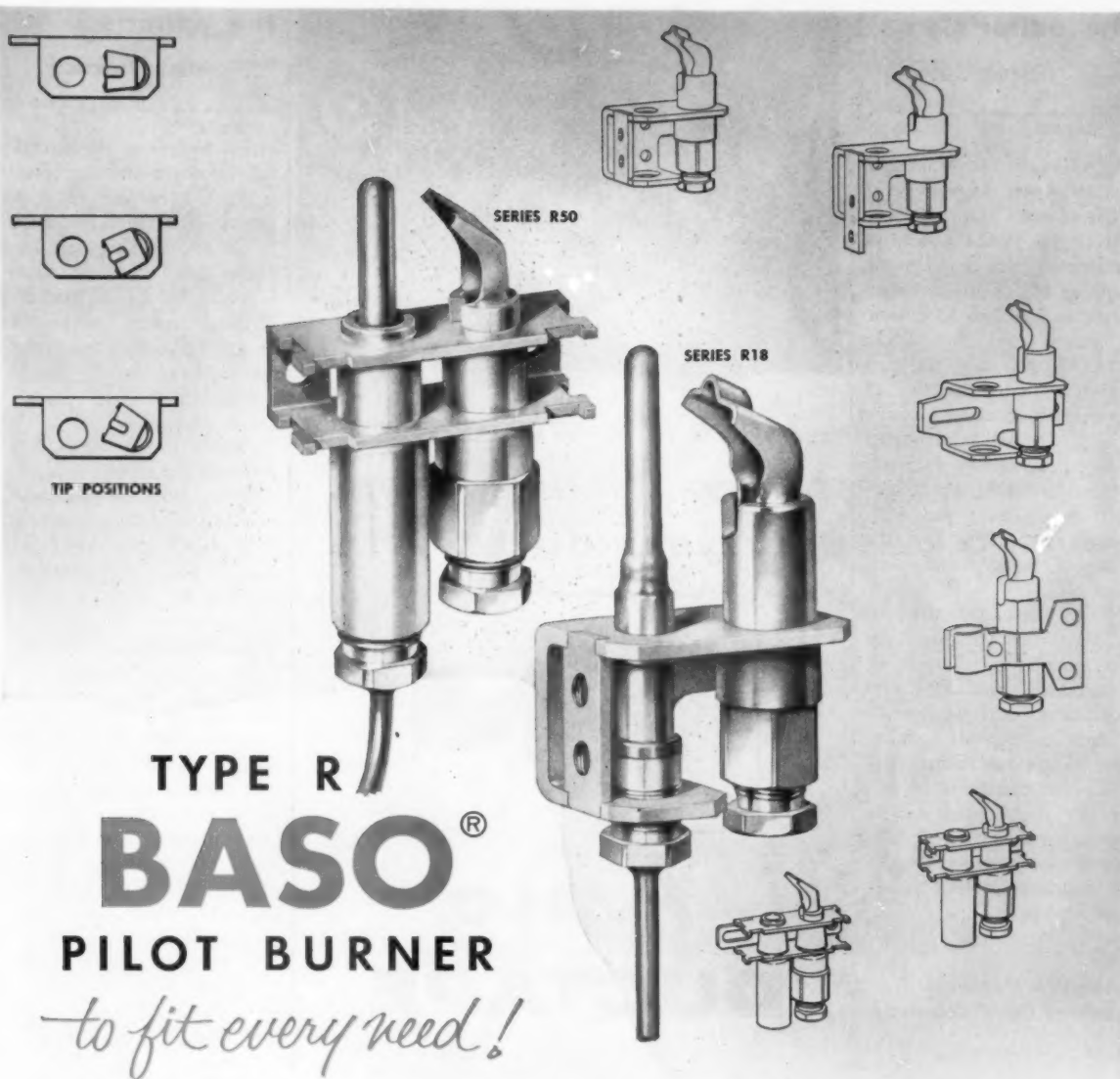
Second Quarter Sales To Top '56 Figure?

HIGHER SALES than a year ago are expected for the second quarter of 1957 by almost two-thirds of the executives interviewed in a Dun & Bradstreet survey of business men's expectations, and the view that profit margins would be whittled further in 1957 was fairly prevalent. The survey reflects the opinions of 1535 executives of the larger and medium-sized manufacturing, wholesaling, and retailing concerns scattered across the country.

Selling prices higher than a year ago were expected by 41 percent of the business men, a smaller proportion than the 63 percent who expected increased sales.

Says Home Cooling 'Came of Age' in '56

THE BUSINESS of cooling America's homes came of age in 1956, according to Richard M. Locke, air condition-



TYPE R
BASO®
 PILOT BURNER
to fit every need!

B The new, non-linting Type R Pilot burner comes in three tip positions and in a wide variety of mounting brackets to fit all kinds of gas appliances. Thus the advantages of this trouble-free non-aereated pilot can readily be yours.

B The R50 Series at 300 Btu./hr. or the R10 and R20 Series at 700 Btu./hr. have the same stable, lint-free performance, employing but a single, blue flame to ignite the main burner and heat the thermocouple whether mounted horizontally or vertically.

WRITE FOR BULLETIN.

BASO INC.

(Formerly Milwaukee Gas Specialty Company)

MILWAUKEE 1, WISCONSIN
 Dept. SA-2

the editor's notebook

(continued)

ing manager for Minneapolis-Honeywell Regulator Co. "Dollar-wise, the year was the largest in the history of residential air conditioning, topping \$1½ billion as compared to less than \$5 million a decade ago," Mr. Locke said. "It was also the year in which many theories of residential comfort were proved sound. Equipment reached satisfactory standards of performance, installation and service techniques were greatly improved, and the price of home cooling leveled off.

"This means that the buyer need wait no longer for the introduction of new air conditioning concepts, better equipment, or lower prices.

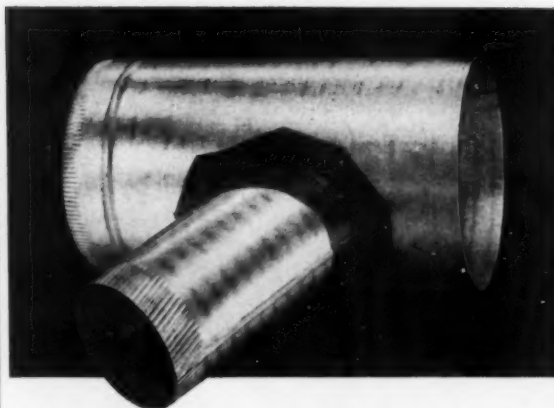
"Just as in other industries, future models may contain minor changes or be subject to slight price adjustments, but there is little likelihood of any major changes in residential cooling in the next few years."

Employee Meetings Promote Good Relations

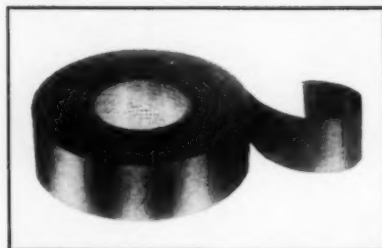
MORE AND MORE evidence of the value of meetings between employers and employees is coming to the fore. Data has been accumulated by the Chamber of Commerce of the United States and assembled in a new publication called "Better Business Relations Through Employee Meetings."

The publication is the second in a new series of "how-to-do-it" manuals designed to help American business men develop better employee relations and communications. The first guide book in the series, "Better Business Relations through Employee Annual Reports," was issued last fall.

The 24 page new publi-



**Here's a wonderful
New Sealing Tape
for your duct work!**



**Arno
DUCTAPE**

No other method seals ducts so fast, so tight, so economically. Arno Ductape has been specially developed for this purpose. You can test and prove all these advantages:

- Seals every joint tightly, neatly—regardless of size, shape, angle!
- Keeps out moisture—waterproof, vaporproof!
- Goes on like magic—nothing to mix, no backing to peel off. Just apply as you unroll!
- Holds permanently to any type of material—metal, wood, plastic or paper. And how it holds!
- Reinforces your duct installation—through high tensile strength and strong adhesive power.
- Gives you high-quality jobs with substantial labor savings!
- In 60 yard rolls—any width desired—black, olive drab, tan or aluminum, flame-resistant and non flame-resistant.

**TRY IT!
SEND FOR
FREE SAMPLE**

DISTRIBUTORS: Write for profit-plan on this fast-moving product. Backed by Arno's quarter-century experience in manufacturing high quality pressure sensitive tapes.

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4110 Ohio Street, Michigan City, Indiana
Subsidiary of The Scholl Mfg. Co., Inc.

Please send me a free 15 ft. sample ☐ flame-resistant ☐ non flame-resistant ☐

Name

Company

Address

City State

I am a Distributor ☐ Contractor ☐

the editor's notebook

(continued)

cation reports on the successful employee meeting practices of a number of companies. It outlines five steps to an effective meeting, explains how employee meetings can be made more effective, presents a profile of a good discussion leader and reviews practical, proven approaches to 10 types of "problem personalities."

"Better Business Relations Through Employee Meetings" is available from the National Chamber, Business Relations Dept., 1615 H St., N. W., Washington 6, at 50 cents a copy.

When Can Dealer Afford To Stop Advertising?

THE VALUE of local level advertising was brought out by Don E. Dieterle in a recent issue of the Ohio Sheet Metal Contractors Association's bulletin. Mr. Dieterle asked the question, "When should advertising be stopped?" Then he gave these eight answers:

1. When everybody knows you.
2. When no new customers enter the picture.
3. When no new men are located in the companies to which you are selling.
4. When present competitors stop advertising.
5. When no new competitors enter the field.
6. When there is nothing about your business that needs to be clarified or explained.
7. When the public stops being born, stops dying, stops forgetting.
8. When you expect to go out of business.

Clyde M. Barnes

EDITOR

It's easier to sell a Name They Know

FRIGIDAIRE



AIR CONDITIONERS



A complete line of water cooled, air cooled and combination systems for every residential application.



Vertical Cooling Coils
2, 3, and 5 ton capacities



Horizontal
Cooling Coils
2, 3, 5 ton
capacities



Coil-Blower Units
2, 3, 5 ton capacities



A complete line of gas
and oil furnaces—de-
signed to "go-together"
with Frigidaire
Air Conditioning Units



Year-Round
Conditioners 2 and 3
ton cooling capacities,
gas or oil



A complete line
of air-cooled
condensing units
and condensers

The key to your profits is salespower. And Frigidaire has it—in products, training and promotion! That's why it's easier to sell Frigidaire—a name your prospects know and trust! Products are easier to install because they're complete units—prewired to sealed refrigerating systems to cut installation time, give a better job, fewer callbacks. Manpower! Frigidaire has it, too. Their team is experienced and close by to help you sell and service. Want to know more? Then... **WRITE—Commercial Sales Manager, FRIGIDAIRE DIVISION, GMC, Dayton 1, Ohio.**

PLUS THESE BIG SALES AND SERVICE ADVANTAGES

- **Technical Training Programs**—factory-backed application and service schools that are the envy of the industry—plus a complete continuing technical service for every dealer.
- **Sales Training**—complete schooling from "prospect getting" to "order closing."
- **Local Merchandising**—the works! Sales aids, displays, local advertising, sales promotion, co-op advertising—plus an individual dealer advertising service.
- **National and Local Advertising**—biggest campaign in Frigidaire history to make prospect preference for Frigidaire even greater!



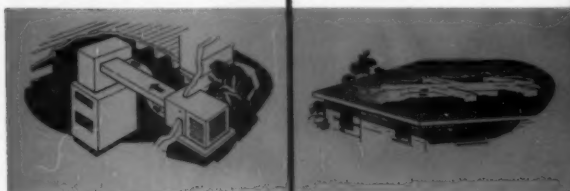
GO FRIGIDAIRE

Vornado®

SELF-CONTAINED

CENTRAL AIR CONDITIONERS

only system of its kind
proved in thousands of homes!



Add to furnace

Powerful, compact unit connects quickly... easily — and economically — to existing warm-air furnace ductwork.

Use as a separate system

Revolutionary, new, prefabricated Vornado ductwork of Fiberglas is available for quick, easy installation where needed.

Vornado installs fast, easily, anywhere!

COMPLETELY PACKAGED everything in one compact, sturdy package! Air cooled to eliminate extra plumbing... water connections... outside accessories.

OUTSTANDING PERFORMANCE powerful! With two hermetically sealed, heavy-duty compressors to deliver unequalled capacity. One operates continuously... constantly removes excess humidity. Other cycles on and off as needed for economy's sake.

FULLY GUARANTEED by the manufacturer! Factory warranty assures satisfactory service. Over 7 million satisfied Vornado users.

Vornado

SELECTED DEALER PLAN ASSURES YOU:

- * Adequate Sale Area
- * Proven Prospect Plan
- * Powerful Merchandising and Advertising Assistance
- * Traffic Building Promotions
- * Continuous Sales Training
- * **FULL PROFITS**

The O. A. SUTTON CORP., INC.
1813 W. SECOND ST.
WICHITA, KANSAS

I want complete information on your new versatile, low-cost Vornado Central Air Conditioners. It is understood there is no obligation.

AA-4-57

NAME _____
FIRM _____
POSITION _____
ADDRESS _____
CITY _____ STATE _____

"The Preferred Line for Profits" IN RESIDENTIAL OR COMMERCIAL INSTALLATIONS



Residential "Add-On" Application

GATEWAY SHEET METAL CO., Houston, Texas, attributes additional builder sales of Vornado Central Air Conditioners to this 10-unit installation for R & H Construction Co., Houston. According to J. D. Rees of Gateway, "Other builders watched this development with much interest and a large percentage of that interest can be attributed to the fact that they were air conditioned by Vornado." Resulting sales were highly profitable for Gateway!



Commercial "Separate System" Application

FRANK M. BOOTH, INC., Marysville, Calif., has found commercial installation of Vornado self-contained air conditioners highly profitable for multiple-unit sales. Mr. Booth says, "We believe Vornado has provided a profitable service to air conditioning contractors. This four-unit installation at a bowling alley overcame the objections of evaporator-type cooling, and has led to other commercial sales in the neighborhood. This is typical of our success with Vornado in this area."

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COUPON
TODAY

The O. A. SUTTON CORPORATION, INC.

World's leading full line manufacturer of comfort cooling appliances

WICHITA, KANSAS

Distributed in Canada by: Alliance Motors, Schell Ave., Toronto 10.



*a gleaming new
sales maker for the
contemporary builder*

Go modern—go quality! You can do both with Hussey Copper for a lot of uses new to current homebuilding practices.

Take the roof, for instance, of the modern contemporary design. An ideal place for a Hussey Copper standing seam all-copper roof. Discerning buyers know the importance of this extra note of quality and everlasting beauty it

will attain once the patina has formed. No finer . . . longer lasting . . . or more maintenance-free roof has ever been developed. Use it as your mark of top-quality construction. Use it as a sales tool for extra profit. Make sure it's Hussey Copper and be sure!

BUILDING PRODUCTS • SHEET • WIRE • COILS
BARS • STRIP • TUBING • ROOFING PRODUCTS



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C. G. HUSSEY & COMPANY

(DIVISION OF COPPER RANGE COMPANY)

ROLLING MILLS AND GENERAL OFFICES • PITTSBURGH 19, PA.

7 Convenient Warehouses to Serve You . . .

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Tecumseh

offers you a

THE COMPLETE COMPRESSOR LINE—ENGINEERED



Models B1516, B1613

1 HP, single phase, twin cylinder. 10,700 BTU rating. External mount, air cooled compressors charged with F-22. Primarily designed for self-contained air conditioners.



Model B32P16

1½ HP, single phase, twin cylinder. 16,500 BTU rating. External mount, air cooled compressor charged with F-22. Ideal for small attic installations, operated singly or in tandem.



Models B74T16, B21T18

2 HP, single phase, twin cylinder. 19,500 and 23,400 BTU ratings. External mount, air cooled compressors, charged with F-22. 2 HP compressors designed to broaden the central systems market.



The Leader Serving Leaders In The Air Conditioning And

TECUMSEH PRODUCTS

EXPORT DEPT. — P.O. Box 2280, 24530 Michigan Ave.,

engineering VISION

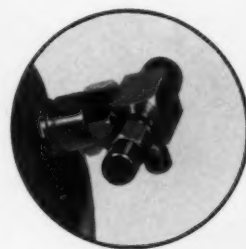
complete line for year-around air conditioning, priced to expand your market!

By continuous improvement and expansion, Tecumseh hermetic compressors today represent the most complete and up to date line in the industry. And as an example of our constant cost reduction program, the Tecumseh 3 HP single phase compressor shows an overall price reduction of 24% since 1953 in spite of continually rising prices.

Tecumseh compressors effectively utilize suction gas to dissipate motor heat — run smoother and quieter — deliver full capacity at 90° ambient with a 45° coil . . . continue to cool even at 120° ambient or at 90% of rated voltage! Tecumseh mass production facilities offer economical choices of hermetic compressors in:

- Horsepower ranges from 1 to 5 HP
- BTU ratings from 10,700 to 62,500
- Internal and external mount models
- Single and three phase
- Air or water cooled application
- Low sound level operation
- Optional oil level sight glass
- Choice of tubes, solder valve, or Rotalock Valve

Your best interests are continually served at Tecumseh. Write your Tecumseh District Office for the best solution to your central system requirements today!



ROTALOCK VALVE—
Multi - position, - detachable valve — permits positioning of suction and/or discharge connections at any angle throughout 360° while maintaining a positive pressure seal.

TO YOUR INDIVIDUAL SYSTEM REQUIREMENTS



SINGLE PHASE

Models JE200, JB200, JE300

2 and 3 HP, twin cylinder. BTU ratings from 22,500 to 36,000. All models except JE200 charged with F-22. Internal mount hermetic compressors available for air or water cooled operation. Designed for



THREE PHASE

complete flexibility, along with economical mass production to fill the exacting requirements of the year-round air conditioning customer.



Model FB500

5 HP, single phase, four cylinder compressor. 62,500 BTU rating. Charged with F-22. Fully hermetic external mount compressor for large residential air conditioning and similar applications.

Refrigeration Industries

COMPANY

West Dearborn, Michigan

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TECUMSEH, MICHIGAN



Never before a roof deck like this!

Milcor Steel Roof Deck is designed to cut erection costs and on-the-job damage

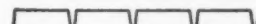
Milcor Deck makes every job easier, quicker and more profitable. Here's why: Its 24-inch width and lengths up to 28 ft. 6 in. speed erection. Its die-set ends make fitting easier, more rapid. Its $\frac{3}{4}$ -in. wide ribs permit con-

venient welding from the top. • But there's more! *Only Milcor Steel Roof Deck has a Bonderized, baked-enamel prime finish.* • For the full story on Milcor Steel Roof Deck and its exclusive advantages, write for Catalog 240.


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INLAND STEEL PRODUCTS COMPANY • Dept. M, 4023 West Burnham Street • Milwaukee 1, Wisconsin
ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER
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"A" Section — The standard of the industry for closed-rib decks.



"B" Section — Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel.



"C" Section — Carries normal roof loads over spans up to 20 feet.

Report Increase in Building Contracts

NEW YORK — Contracts for future construction in the United States increased 4 percent in January over the same month the year previous, according to F. W. Dodge Corp. January contracts totaled \$2,299,554,000.

This is the first time that a figure for total construction contracts has been available for the entire 48 states. The Dodge organization has previously released data covering only 37 eastern states. This year contract figures for the 11 western states have been added.

The report shows that the western region accounted for 23 percent of the total construction contracts during the month. Contract figures for the 11 western states totaled \$521,264,000, up 13 percent over January of last year. This rise was considerably greater than in the remaining 37 states, which increased only 1 percent over the same period.

Residential building contracts in all states totaled \$816,566,000, a slight increase over last year. Despite this gain in dollar terms, the number of dwelling units dropped to 64,313, which was 9 percent below January 1956.

Total contracts for nonresidential buildings in January increased 16 percent over the same month the previous year. The nonresidential construction figure was \$914,168,000.

OHl Selects Boston As Convention Headquarters

BOSTON — The Sheraton-Plaza Hotel has been selected as headquarters for the 35th annual convention of the Oil-Heat Institute to be held June 3-6. At the same time, the Oil-Heat Institute of New England, a chapter of the national association, will hold its biennial exposition at the Hotel Statler.

SMACCNA Program to Cover Industry's Major Problems

Quality, Labor, Promotion Are Up for Discussion

CHICAGO — The program for the annual convention of the Sheet Metal and Air Conditioning Contractors' National Association will include dis-

cussion of some of the industry's most pressing problems. The meetings will be held at the Edgewater Beach Hotel, Chicago, May 15-18.

Conferences, forums and talks will cover nearly every general and special phase of the sheet metal business. The convention is open to members and non-members of the association. A special program is planned for the entertainment of wives.

Attending the meeting will be scores of officers and members of active local associations. The formal and informal meetings, therefore, offer an opportunity to exchange information, to learn how local associations can be improved or organized.

The major part of one day will be devoted to labor relations and how they affect and concern individual contractors. Among the topics covered in these sessions will be developments in welfare plans, vacation plans, pension plans; jurisdictional agreements between unions; labor agreement clarifications for contractors working out of town, and other developments during the past year.

(Continued on page 23)

Convention Program

Wednesday, May 15

Annual business meeting
Men's Luncheon
Ladies' Luncheon
Proposed Constitution changes
Report, Council of Chapter Representatives
Night Club Party

Thursday, May 16

Built-up Roofing Conference
Production Fabricators Forum
Warm Air Heating-Cooling Forum
Men's Luncheon
Ladies' Luncheon
Industrial Sheet Metal Roundtable
Indoor Comfort Institute Conference

Friday, May 17

General business meeting
Labor Relations Forum
Men's Luncheon
Labor Relations Forum
(continued)
Annual Banquet and Dance

Saturday, May 18

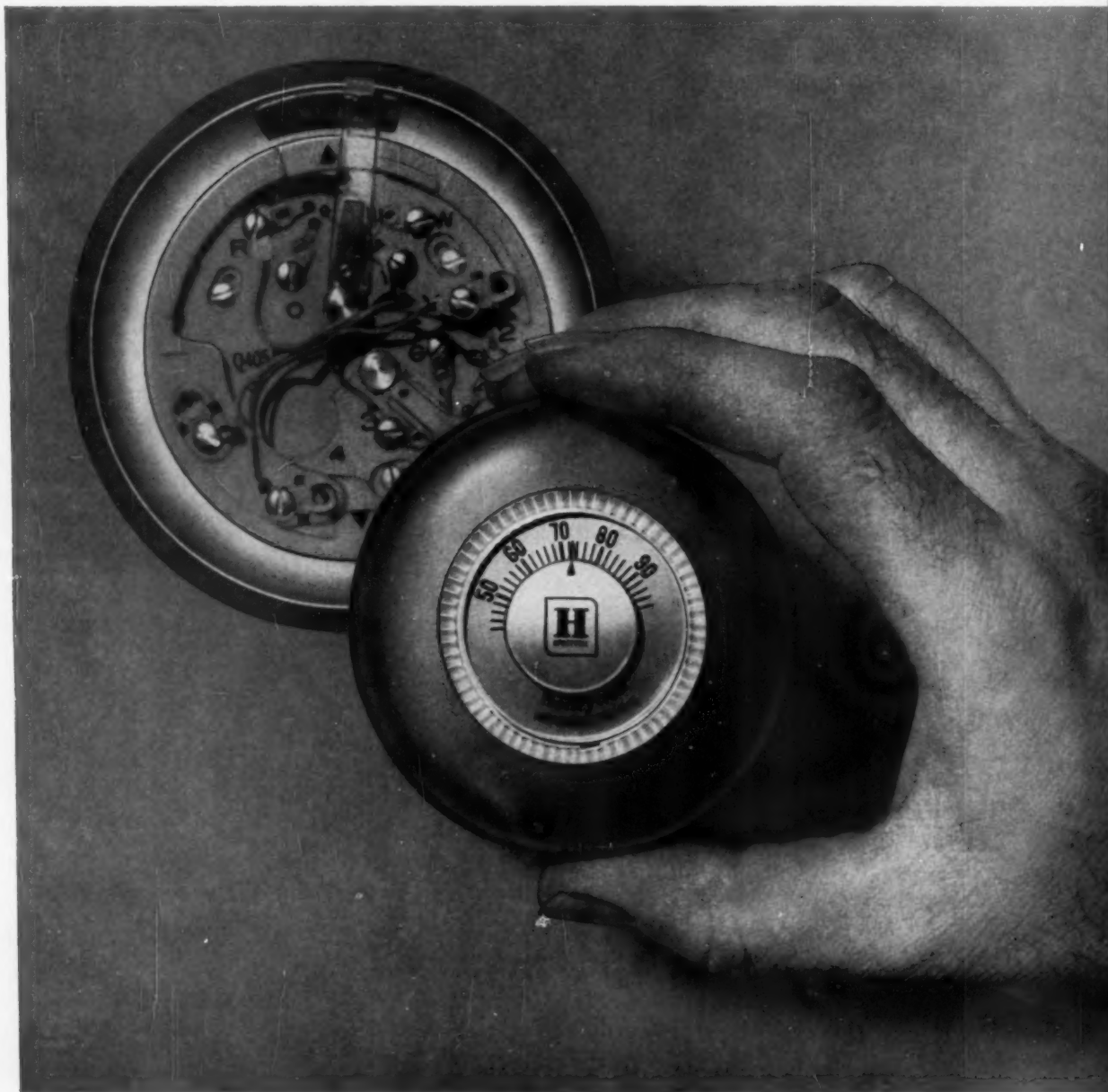
General business meeting
Election of Officers, Directors
Employers' Life Insurance Plan
Legal Lessons of Past Year
Men's and Ladies' Luncheon
Adjournment

Doscher Quits ohl Post; Forms Promotion Firm

NEW YORK — John R. Doscher has announced his resignation as executive director of Operation Home Improvement and revealed plans to open his own sales promotion agency here. Mr. Doscher noted that the big job in the industry is for individual companies to compete more effectively with other industries for a bigger share of the consumer dollar. He said that his resignation should have little effect on the successful conclusion of the ohl campaign.

Honeywell's answer to residential

GIVE YOUR CUSTOMER PRECISELY



In addition to heat anticipation, Honeywell's new T87 Thermostat has a proved universal mercury switch. It provides cooling anticipation where the control system current is zero to 1.5

amps. Now one model covers the whole range. T87 installation is easy, too. Honeywell Sub-Base serves as mounting plate. Being open, it is easily wired. Thermostat simply screws on.

air conditioning control problems is simple, just

WHAT HE WANTS—AND NEEDS!

*Now, combine one Honeywell Thermostat with
your choice of 12 Honeywell Sub-Bases—to offer any sequence
of operations to meet any heating-cooling need*

HERE'S THE most flexible control combination ever conceived for heating-cooling. And the most satisfactory. For the world's most popular thermostat—the Honeywell Round—provides the close sensitive control which means better dehumidification. Its operating differential of only 1° also eliminates the frequent discomfort of those wide temperature swings.

By stocking just one Honeywell Thermostat and combining it with any of 12 Honeywell Sub-Bases—you give customers the *exact*

switch and thermostat combination they want to best meet their needs.

Then to complete the system, you choose from specially designed pre-wired Honeywell Control Panels—customized to meet your needs. And that's it—all in one easy-to-stock, easy-to-install system.

Get detailed information on Honeywell's complete line of air conditioning controls. Call your local Honeywell office, or write directly to Honeywell, Dept. AA-4-105, Minneapolis 8, Minnesota.

*You offer Honeywell's famous "custom control"
air conditioning with this wide range of switching actions.*

For use with the famous Honeywell Round T-87 Thermostat



Q405A—Heat-Off-Cool Fan On-Auto



Q405B—Heat-Cool Fan On-Auto



Q405C—Heat-Off-Cool



Q405D—Heat-Cool



Q405E—Cool-Auto-Off Fan On-Auto



Q405F—Heat-Off-Cool Fan On-Auto



Q405G—Heat-Off-Cool



Q405H—Cool-Auto-Off (extra pole wired for continuous fan operation)



Q405L—Cool-Off-Fan

Note: Models of Q405A, C & E are available for providing remote reset of cooling system.

MINNEAPOLIS
Honeywell

112 offices across the nation



Air Conditioning Controls

The "hottest" products are cooled by Copeland

Find the manufacturer of a famous line of air-conditioning or refrigeration products, and it's a good bet you've found another Copeland customer. Companies with a reputation for quality and service at stake, can't take chances . . . for the heart of their products, they demand motor compressors and condensing units by Copeland.

Since the industry was in swaddling clothes, Copeland has pioneered perfection . . . researching its needs, testing in laboratory and in the field, and building a progressively higher standard of performance and durability into every unit. You'll make and keep warm friends when Copeland does your cooling.



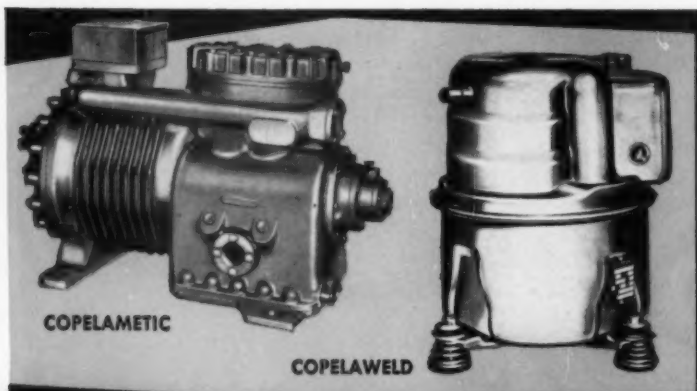
SINCE 1918

Copeland
REFRIGERATION

CORPORATION, Sidney, Ohio

Manufacturer of the heart of

America's finest commercial refrigeration
and air conditioning



COPELAMETIC

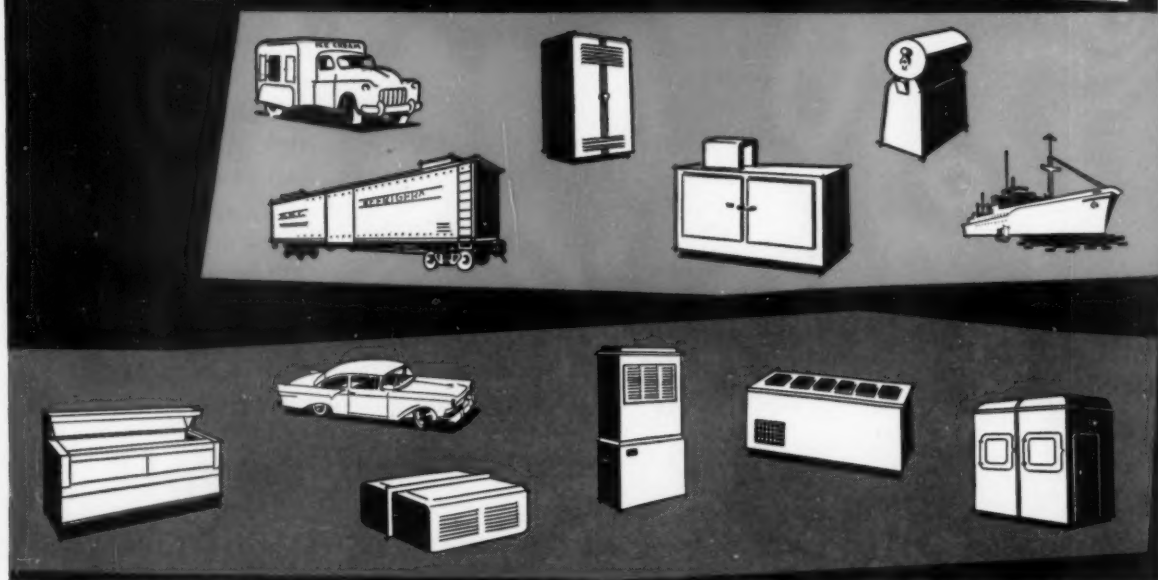
The Accessible Hermetic

You can get to direct-drive Copelametic units effortlessly . . . in a jiffy. No belts or seals, no manual oiling. 90% of service costs eliminated. Models for all applications—air and water-cooled—from $\frac{1}{2}$ through 3 h.p. Self-contained units $\frac{1}{2}$ and $\frac{1}{2}$ h.p. Suction-cooled also available.

COPELAWELD

Hermetics — Sturdy, Silent, Safe

The leaders' choice for refrigeration and air-conditioning products. Vibration-free; delivers high capacities at lowest current output. Freon-12 and Freon-22 models; sizes $\frac{1}{2}$ H.P. through $1\frac{1}{2}$ H.P.



Cooperation Sought By ASHAE-AIA Joint Committee

NEW YORK — The American Society of Heating and Air-Conditioning Engineers and the American Institute of Architects have named a joint committee to encourage greater cooperation between consulting engineers, architects and the air conditioning industry.

John E. Haines, past president of ASHAE from Minneapolis, and Paul Schell, AIA member from Pittsburgh, were appointed co-chairmen of the new committee.

Committee members have been assigned subjects for study and development to provide information of mutual interest. Mr. Haines is preparing a talk covering such subjects as types of summer air conditioning, costs, purposes, effectiveness and reaction on efficiency of occupants. This talk will be used before meetings of architects and other interested groups.

(Continued on page 26)

SMACCNA Program Hits Major Problems

(Continued from page 19)

A warm air heating and cooling forum will discuss such subjects as: can cooling be guaranteed, status and limitations of crawl space plenums, making a profit from service departments, the warm air code and licensing ordinance, National Fire Protection Association pamphlets.

Promotion programs, such as WHAM, stamp plans, and certified heating and cooling, will be discussed in an Indoor Comfort Institute conference. This meeting will also take up the need for a national association for warm air heating-cooling dealers.

Other sessions include a built-up roofing conference, a production fabricators forum, and an industrial sheet metal roundtable.



ONLY A SMALL portion of the giant International Heating and Air-Conditioning Exposition can be caught in the camera's lens. More than 23,000 attended the exhibit in Chicago

Thousands View Equipment At International Exposition

CHICAGO — Record breaking attendance with more than 23,000 registered assured the success of the 13th International Heating and Air-Conditioning Exposition held in

February at the International Amphitheatre. Nearly 500 colorful displays filled the floor of the huge exposition hall.

Visitors were on hand from all parts of the United States, Canada, Mexico and some 20 foreign countries.

Every kind of equipment employed in stabilizing indoor climate was on display. Exhibits ranged from a tiny thermistor that senses and signals changes in the weather out of doors to a big "climate changer," built to heat or cool as many as 25 zones within a building.

Engineering trends, by comparison with former expositions, reflected improved styling, more diversified methods of clarifying air, greater reliance on changes in weather to modulate air conditioning, improvements in automatic controls, as well as a general effort to further suppress the sound of air moving equipment.

It was announced that the next exposition will be held in Philadelphia in January, 1959. Also revealed were plans for the Second Southwest Heating and Air-Conditioning Exposition in Dallas in 1960. Both events are under the auspices of ASHAE.

Reznor Acquires Assets Of Arthur A. Olson Co.

MERCER, PA. — Reznor Manufacturing Company has announced its purchase of the assets of Arthur A. Olson & Company, Canfield, Ohio. The purpose of the acquisition, according to Reznor President David R. Webster, is to expand the company's line to include larger capacity units.

Reznor manufactures gas unit heaters, while the Olson company has produced stainless steel direct-fired gas and oil heaters. The expanded line will offer unit heaters in 18 capacities from 25,000 to 2,000,000 Btu models. Appropriate sizes will be available for suspended, duct and free standing installations.

Production of the Olson units will be integrated into Reznor manufacturing operations in the near future. Arthur Olson and Edwin Runge, officers of the Olson company, will join the Reznor staff.



Rocco Berkan



Carl Clark

From Sacramento, California, where the mercury seldom dips below 100° on summer days, comes another report on Rheemaire home air conditioning. This time from Berkan & Clark, Inc., in suburban Carmichael:

"In 100° Sacramento temperatures, RHEEMAIRE gives maximum cooling capacity at lowest operating cost..."

"In fact," said Mr. Berkan, "Rheemaire cuts operating costs almost in half!" This is because Rheemaire delivers up to 95% more cooling capacity per compressor h.p. For instance, a 1 h.p. compressor—teamed with the exclusive, new Air-Film Condenser—gives 1.85 tons of cooling. And Rheem backs that rating with a \$1,000 capacity guarantee! "And," says Mr. Clark, "Rheemaire is loaded with other sales advantages:

"Rheemaire is easier to install."

It's one air-conditioning system all heating and air-conditioning contractors can install *themselves*. Fast, too! Refrigerant lines come from Rheem already charged and equipped with special quick-connect couplings. So there's no system evacuation. No charging. No sweat connections.

"Rheemaire is smaller and quieter."

The bulk of the system is placed *outside* the home. This way, it takes up no usable space inside and eliminates the noise problem. On top of that, there's no space-taking, costly recirculating system needed with Rheemaire. And no extra ductwork.

How can Berkan & Clark be so sure of all this? Well, they ought to know. They've been in the business for the past nine years handling all types of home units. Last year, they installed 32 Rheemaire systems. "To this day,"

they said, "these systems have all been practically service free!"

Needless to mention, Rheemaire is a big money-maker for Berkan & Clark. And, as Mr. Clark says, "It can be for any contractor who simply

wants to sell and install one of the very best central air conditioning systems on the market today."

How about you? Write for your free booklet containing full details on Rheemaire. Do it now!

YOU CAN RELY ON



THE BIG NAME IN COMFORT PRODUCTS FOR THE HOME
water heaters, warm-air furnaces, wet-heat boilers,
plumbing fixtures, water softeners

Home Products Division of Rheem Mfg. Co. / Dept. AA6, 7600 S. Kedzie Ave., Chicago 29, Illinois





*Stainless Steel
machining information...*

***Use a heavy cut, but slow**



MACHINING Stainless Steel isn't difficult—but it's *different*. Most grades of Stainless should be machined at about *half* the speed of carbon steel. This stems from the fact that Stainless is tough, rather than hard, and it tends to seize and gall at higher tool speeds.

Sharp tools are *essential*, especially for austenitic (300 series) Stainless Steels. Dull tools will work-harden and glaze the piece. In fact, the work-hardening may be so bad that future cutting will actually be impossible. A heavy, slow cut will give the best results with almost any grade of Stainless.

Trial and error is *not* the best way to master Stainless Steel machining. We suggest that you refer to U. S. Steel's "Stainless Steel Fabrication Book" for service-tested fabricating ideas. If you don't have a copy of this 130-page book, write for it on your company letterhead to United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH
AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION,
WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS
PIPE • TUBES • WIRE • SPECIAL SECTIONS

UNITED STATES STEEL



Summer Convention Features Practical Ideas for Dealers

SAN FRANCISCO — An idea-packed program with subjects ranging from figuring dealer costs through builder-contractor relationships to dealer promotion and advertising techniques will be featured at the summer convention of the warm air heating and air conditioning industry.

The summer meeting will be held at the Fairmont Hotel, San Francisco, June 5-7. It is cosponsored by the National Warm Air Heating and Air Conditioning Association, the Warm Air Heating Institute of Northern California, the Institute of Heating and Air Conditioning Industries, and the Portland, Ore., Warm Air Heating and Air Conditioning Association.

The convention program will be kicked off on Wednesday, June 5,

Joint Committee Seeks ASHAE-AIA Cooperation

(Continued from page 23)

Mr. Haines and Hermann C. Hoffmann, ASHAE member from Syracuse, N.Y., will compile data on the cost and benefits of cooling commercial and industrial new buildings.

Standards for cooling buildings, as determined by geographical area, type of building, use and occupancy, are to be developed by ASHAE members Cary B. Gamble, New Orleans; Peter B. Gordon, New York, and John Everetts, Jr., Philadelphia. This information is to include facts about temperature, humidity, cleanliness, air movement and noise levels. It will also include details on the effect of light loads, window areas and insulation on the cost and effectiveness of summer air conditioning.

The additional costs for the installation and operation of cooling systems in buildings with large glass areas will be investigated by Mr. Hoffman and Mr. Schell.



THE GOLDEN GATE will welcome you to San Francisco for the industry's Summer Convention, June 5-7

when Frank L. Meyer, president, NWAHACA, outlines "Problems Confronting Our Industry." He will be followed by C. W. Nessel, chairman, field investigation committee, NWAHACA, who will discuss "The Unexploited Market." The important question of "Costs — Do You Know Yours?" will also be probed, and

(Continued on page 30)

Furnace Shipments Off 6% in 1956

CLEVELAND — Central heating furnace shipments in 1956 were down 6 percent from the year previous, the National Warm Air Heating and Air Conditioning Association has announced. Total shipments last year were 1,262,406 units compared with 1,346,951 units the year before.

Warm air gravity units accounted for 6.2 percent of the total shipments or 77,695 units in 1956. The previous year warm air gravity units were 6.7 percent of the total.

The final three months of the year saw the most significant drop in total shipments. Better than half of the total decrease was experienced in October, November and December.

Need for Federal School Aid Debated

WASHINGTON, D.C. — The United States education office reported that a shortage of 159,000 classrooms existed in the nation's public schools last fall. However, in testimony before a House education committee the United States Chamber of Commerce denied that there is any need for federal aid to meet this shortage.

The education office survey said that there were an estimated 2,295,000 public school pupils this year above the normal capacity of school buildings. These pupils are assigned to half day or double shift sessions, to temporary facilities or to overcrowded rooms, the agency said.

In arguing against a federal aid program, the National Chamber declared that the states are doing a good job of meeting the problem without aid from Washington. Thomas A. Ballantine, chairman of the Chamber's committee on education, noted that the education office's own figures show that the classroom deficit was cut in half from 1953 to 1956 without federal intervention.

Mr. Ballantine also challenged the education office figures. He said that Illinois, for example, had a declining enrollment in 1955-56 and built 2,788 new classrooms. Yet according to education office figures in the same year the number of pupils in excess of capacity doubled.

G. M. Marin to Head OHI's 1958 Exposition

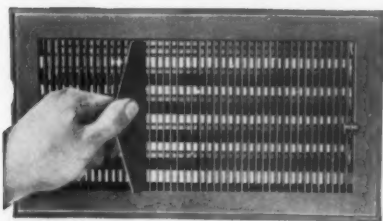
NEW YORK — G. M. Marin, president of Sun-Ray Burner Manufacturing Co., Jamaica, N.Y., has been appointed chairman of the 22nd National Oil Heat and Air Conditioning Exposition to be held in the New York City Coliseum, June 9-12, 1958. The appointment was announced by the executive committee of the Oil Heat Institute of America, Inc. Work has already begun on details.



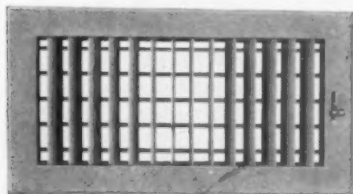
MAKE 1957 YOUR BANNER YEAR

DECIDE ON U.S. REGISTERS AND GRILLES

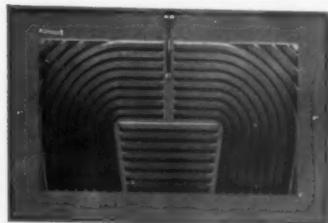
The greatest and most complete lines



U.S. No. 256

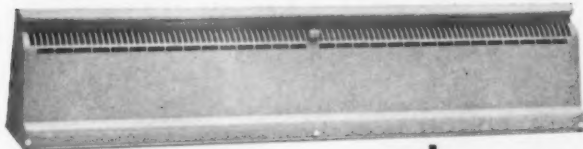


U.S. No. 192-L



U.S. No. 105

U.S. No. 1000



Lowest Cost and Finest Forced Warm Air Conditioning Residential Systems.

The No. 256 — the Lowest Cost Multiple-Valve Type of Outstanding, Unequaled Neat Appearance, and of Supreme Quality.

For All-Year-Around Residential Air Conditioning Systems. The No. 192-L DOES IT. Can be used with regular size wall stacks and stack heads.

LOWEST LISTED QUALITY AIR CONDITIONING REGISTERS FOR COMBINATION HEATING AND COOLING SYSTEMS.

The No. 105 U.S. Diffuser Perimeter Sidewall Register — That Powerful Little Giant of Lowest Resistance, Greatest Free Area and the Greatest Air Diffusion and Air Spread of All — Yet Terrifically Low in Cost. Don't Miss It.

The GREATEST SELLER — The No. 1000 Line of U.S. Base Diffusers, with No. 2000 U.S. Perimeter Base Intake to Match.

Get Your Complete Catalog and Prices.



UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST

"You bet we used P-K® screws on the big Prudential job"

says Frank Loeske, superintendent, the R. B. Hayward Co.

"Our men like P-K sheet metal screws because every one is exactly alike. No off-center or burred slots, no undersized heads. They start right and drive right—help keep the job on schedule. That's why we specified Parker-Kalon for the air-conditioning contract on Chicago's new, 41-story Prudential building," says Frank Loeske, superintendent, R. B. Hayward Company.

P-K® sheet metal screws are headed, threaded, pointed and hardened to give fast, dependable performance on every job. As so many leading sheet metal contractors have found through first-hand experience . . . if it's P-K, it's O.K!

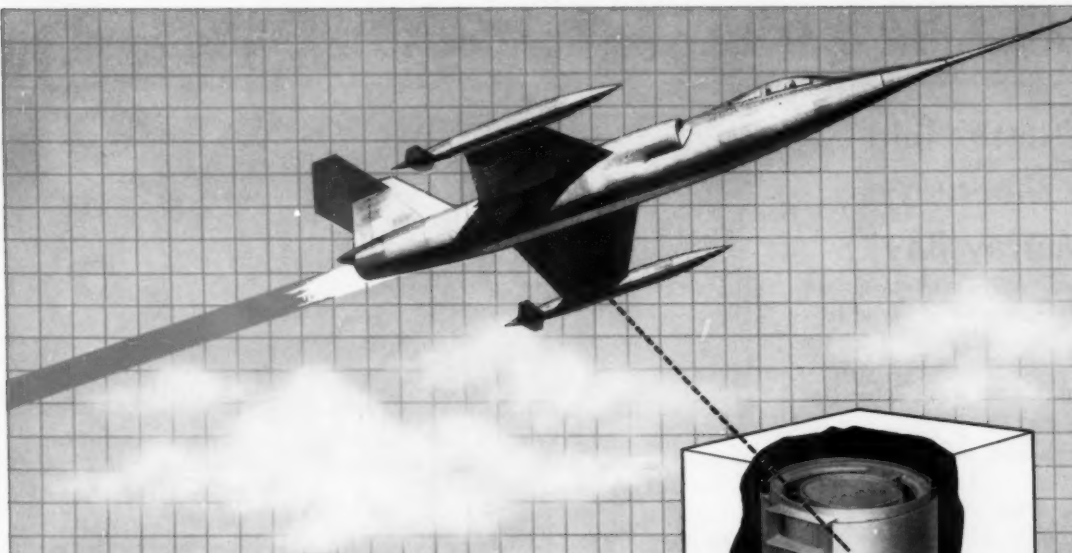
PARKER-KALON® fasteners

*Sold Everywhere Through Leading Industrial Distributors
Factory: Clifton, New Jersey—Warehouses:
Chicago, Illinois—Los Angeles, California.*

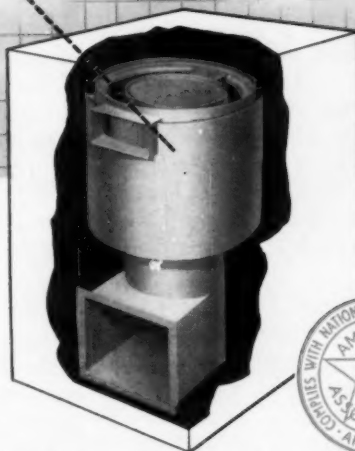
*PARKER-KALON DIVISION, General American
Transportation Corporation, Manufacturers
of Self-tapping Screws, Socket Screws,
Screwnails, Masonry Nails, Wing
Nuts and Thumb Screws.*

Mid-America Home Office of the Prudential
Insurance Company of America.





MADE LIKE A JET...AND MOVES AS FAST!



Only TEMCO gas central heating equipment features heat exchangers finished in Ceramic-Clad*... a high-temperature porcelain enamel finish similar to that used for the combustion chambers of jet engines.

TEMCO's Ceramic-Clad heat exchangers are built to withstand temperatures far higher than any heating unit will ever reach... they never burn out and never rust out (the American Gas Association approves Ceramic-Clad at 225 degrees higher than plain steel!)

*Trademark Registered

That's why TEMCO heat exchangers are warranted in writing for 20 years!

Ceramic-Clad heat exchangers are featured in TEMCO Lo-Boys, Hi-Boys, Gravity Furnaces, and Counter-Flow Furnaces. Air conditioning units available for forced-air equipment. Ceramic-Clad heat exchanger eliminates danger of corrosion from condensation that always accompanies summer cooling.

... just one of the *many* reasons why TEMCO central heating equipment sales are jet-propelled!

TEMCO, inc.

NASHVILLE 9, TENNESSEE

"Gas Heating Specialists for the Nation"



"THE COMPLETE LINE OF GAS HEATING EQUIPMENT"

ROOM HEATERS • FLOOR FURNACES • WALL HEATERS • UNIT HEATERS
WARM AIR FURNACES AND AIR CONDITIONING

TEMCO, Inc., Dept. C-198
Nashville 9, Tenn.

Please send me the full story on TEMCO's exclusive Ceramic-Clad process and the complete line of TEMCO Automatic Gas Warm Air Furnaces.

Name

Firm Name

Address

City Zone State

ASHAE to Hold June Meeting At Murray Bay

NEW YORK — The semiannual meeting of the American Society of Heating and Air-Conditioning Engineers will be held June 24-26 at the Manoir Richelieu, Murray Bay, Quebec, Canada. The program includes two symposiums and numerous papers.

A symposium on Air Conditioning Instrumentation will be moderated by Prof. C. H. Pesterfield, East Lansing, Mich. The second symposium, Sound and Vibration, will be moderated by J. B. Graham, Buffalo, N.Y.

Walter A. Grant, Syracuse, N.Y., chairman of the program and papers committee, has announced that approximately 14 papers will be presented.

The committee on arrangements from the Montreal chapter is under the general chairmanship of D. Lorne Lindsay. Assistant chairmen include W. G. Hole, H. G. S. Murray, B. J. Horsburgh and R. J. Ker. The honorary chairmen are F. A. Hamlet and G. Lorne Wiggs.

Mueller-Climatrol Notes Its 100th Anniversary

MILWAUKEE — One of the oldest heating and equipment brand names in the country — Mueller-Climatrol — celebrates its 100th birthday this year. Established in 1857 by L. J. Mueller, great grandfather of the company's present president, H. P. Mueller, Sr., the company has grown from a small tinshop to one of the industry's largest manufacturers.

In 1857 the company's founder evolved the idea of a tubular double radiator furnace. This launched the firm on its manufacturing career. The original unit was cast iron coal fired and had an unusual self cleaning feature.



AT WASHINGTON meeting, air conditioning industry leaders presented facts and figures on residential cooling to FHA officials in an attempt to clarify the FHA appraisal policy

Summer Convention Features Dealer Ideas

(Continued from page 26)

a panel of West Coast dealers will compare "The Mutual Problems of Builders and Heating and Air Conditioning Contractors."

The Thursday sessions will start with a discussion of "Perimeter Heating and Air Conditioning." This will be followed by a description of "Certified Heating" and an evaluation of "The Wholesalers' Place in the Warm Air Heating Industry." Representatives from the West Coast associations will tell "What's Doing on the Pacific Coast." The day's program will conclude with a panel discussion of all facets of "Air Conditioning — Sales, Engineering, Installations, Controls and Services."

The concluding session on Friday will deal with advertising, promotion and merchandising methods.

National Home Week Set for Next September

WASHINGTON, D.C. — Dates for the 1957 National Home Week have been set for September 21-29, the National Association of Home Builders reported. This event is one of the most important home building events of the year. In 1956 some 10,000 exhibit homes were shown in all parts of the country to potential buyers during the week.

Meeting Increases Hope for Change in FHA Cooling Policy

WASHINGTON, D.C. — George S. Jones, Jr., managing director of the Air-Conditioning and Refrigeration Institute, expressed hope that a recent conference of industry representatives with Federal Housing Administration officials will lead to a change in FHA policy on the valuation of homes with central cooling.

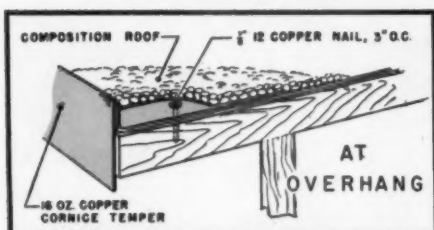
The meeting was called to brief FHA on new developments in summer air conditioning, its operating costs, and the need for reliable data to evaluate equipment.

Operating and maintenance cost data based on actual case histories were presented to the FHA by the committee. The FHA reported that the cost samplings were low enough to allay apprehension that residential cooling imposed an overly heavy burden on the family housing budget.

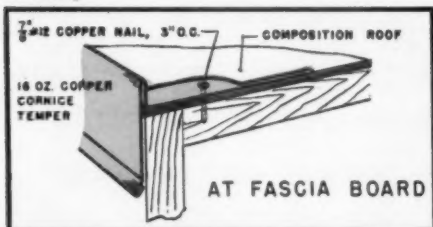
The industry representatives assured housing officials that performance ratings could soon be published to serve as guides in determining the relative merits of different types of equipment.

Builders and equipment manufacturers have felt that FHA appraisals of homes for financing often did not reflect the full value of a summer air conditioning system.

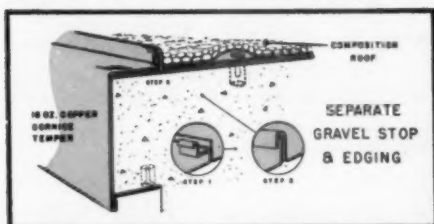
Roof edgings of copper give lasting protection



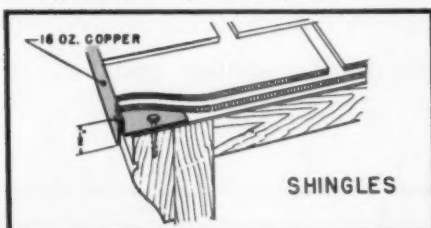
Copper edging has a 4" flashing flange, a $\frac{3}{4}$ " gravel stop, and a drip edge extending at least $\frac{1}{4}$ " below sheathing.



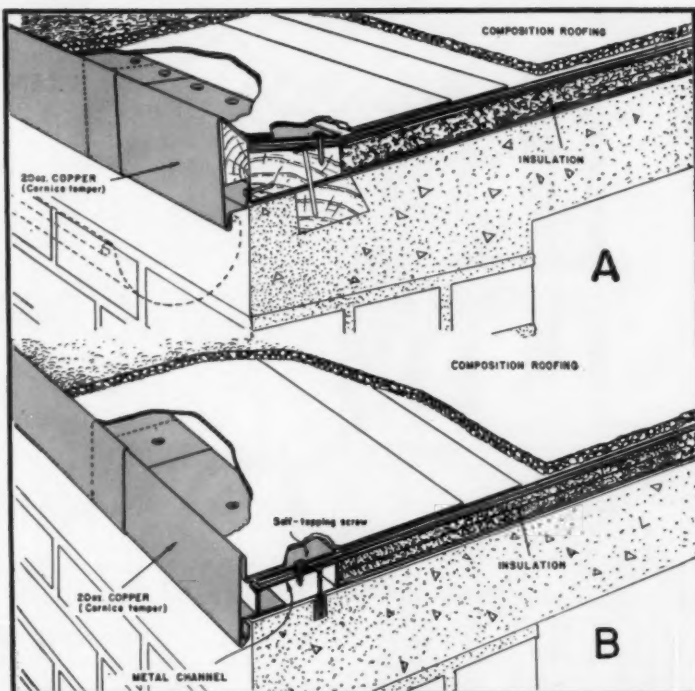
Same as edge for overhang, except that outer face is deeper for neat appearance and bottom edge is turned back to form a hem, canted outward to serve as a drip.



Edging for built-up composition roofing on a concrete deck, designed to show minimum of waviness or buckling. Facing strip is free to slide because of clinch lock seam at top and bottom. Standing seam at top is rolled toward outside and serves as gravel stop. Bottom seam is simple clinch lock joining fascia with stiffening strip for trim appearance and to provide a drip edge.



This edge for shingle roofs serves as a guide and assures alignment of shingles at end of every slope—protects the exposed edges of shingles.



Edges for insulated built-up roofs. There are two problems. One is a firm and secure fastening for the metal so that it will retain its bond with built-up roofing. The other is construction to prevent horizontal shear at the margin of the relatively soft cellular insulating material. Figure A shows how to meet these problems with wood nailers—Figure B, with incombustible metal channels.

All roofing materials, whether for flat or steep roofs, need edgings and flashings. The more durable edgings and flashings are of metal. And the preferred metal is copper—because of its lasting qualities, easy workability, weather-tight performance when properly installed.

The drawings on this page illustrate good sheet copper practice for the more common types of roof construction. For full details and suggested specifications, send in the coupon below for a copy of The American Brass Company's "Modern Sheet Copper Practices."

Look for the Anaconda marking. Every sheet of Anaconda roofing copper is now marked with the weight and temper and the name, "Anaconda." To protect your reputation and make your job easier, insist on Anaconda quality Sheet Copper.

5726

For better
sheet metal work
use

ANACONDA®
SHEET COPPER

Made by The American Brass Company



The American Brass Company
Waterbury 20, Conn.

Please send me my copy of Publication C-1, "Modern Sheet Copper Practices."

NAME

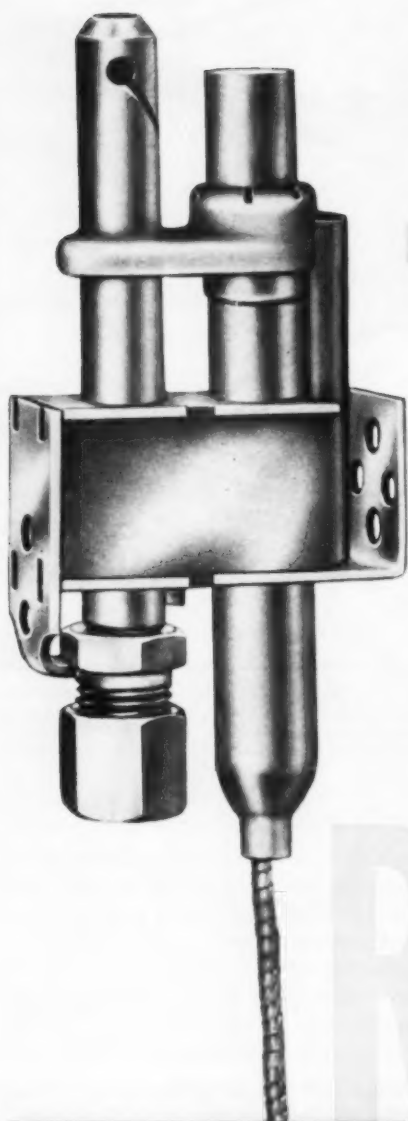
COMPANY

STREET

CITY ZONE STATE

Please check type of business

☐ Architect ☐ Builder ☐ Sheet Metal Contractor



A DEPENDABLE, NON-LINTING PILOT BURNER...

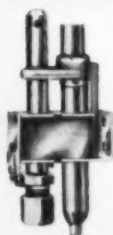
GENERAL CONTROLS' HIGH STABILITY

BLUE FLAME PILOTS THAT PRODUCE MAXIMUM
GENERATION FOR GOOD IGNITION

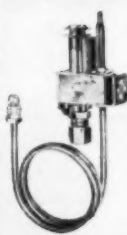
UNDER A WIDE RANGE OF PRESSURE...

GENERAL CONTROLS' FAMOUS *Snorkel*
THE BREATHING DEVICE FOR PILOT BURNERS,
THAT BURNS OUT ALL LINT...

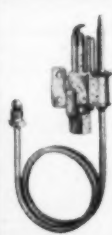
THE MOST RELIABLE, NON-LINTING PILOT
BURNER ON THE MARKET THAT, ONCE AND
FOR ALL, ENDS THOSE ANNOYING SERVICE CALLS.



PG-9
PILOT GENERATOR
700 MV



260
PILOT BURNER WITH
2600 THERMOCOUPLE
1000 BTU



26S
PILOT BURNER WITH
2600 THERMOCOUPLE
500 BTU



GENERAL CONTROLS

America's Finest Automatic Controls for Home, Industry, and the Military
Glendale, California • Skokie, Illinois

Five Plants — 40 factory branch offices serving the United States and Canada

AIR COOLED



The advanced 2, 3 or 5 Ton Luxaire Air Cooled Refrigeration Unit (above) is constructed for either outdoor or indoor installation. The same Condenser-Compressor Unit can be used in connection with any of the units shown at right — when attached to . . .



2 or 3 Ton Combination Luxaire Year 'Round Air Conditioner Gas or Oil Fired



5 Ton Combination Luxaire Year 'Round Air Conditioner



The Cooling Coil which is installed within the furnace cabinet of the Combination Year 'Round Air Conditioner — or . . .



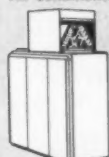
2 or 3 Ton Counterflow Luxaire Year 'Round Air Conditioner Gas or Oil Fired



Luxaire V-type Add-On Cooling Coil installed atop Upflow Winter Air Conditioner



The V-type Cooling Coil, which is installed in the discharge plenum of an Upflow Furnace — or . . .



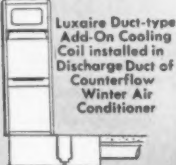
Luxaire V-type Add-On Cooling Coil installed atop Basement-type Winter Air Conditioner



The Duct-type Coil, which is installed in the discharge trunk of a Horizontal or Counterflow Furnace.



Luxaire Duct-type Add-On Cooling Coil installed in Discharge Duct of Counterflow Winter Air Conditioner



Luxaire Duct-type Add-On Cooling Coil installed in Discharge Duct of Counterflow Winter Air Conditioner

WITH
Luxaire

YOU CAN MAKE A

**Bigger Variety of
COOLING INSTALLATIONS
WITH Fewer Units**

**NOW . . . even
MORE COMPETITIVE in PRICE!**

Whether you install the complete Combination Year 'Round Air Conditioner or an Add-On Cooling Unit, you'll be money ahead with Luxaire.

Luxaire Cooling Units give you maximum installation flexibility, while making it unnecessary for you to carry a large and costly stock. With the Luxaire Air Cooled Circuit, the same Condenser-Compressor Unit can be used in any variety of installations—with the Combination Year 'Round Unit, or with an Add-On Cooling Coil combined with any type of centrally installed forced air furnace. Luxaire Water Cooled Circuits are likewise adaptable for installation in the Combination Unit, or as an Add-On Unit with a furnace.

But Luxaire has not stopped here. Luxaire Cooling Units have the same rugged, trouble-free design as Luxaire Heating Units. Compressors are heavy and durable, and are readily serviced in the field. All Luxaire Cooling Circuits are warranted under one of the most liberal Five Year Protection Plans in the industry.

The price of this excellence is competitively low—made even more competitive by recent reductions.

If you are looking for a way in which to become more competitive in the cooling business—or for the right line with which to enter the cooling field in a competitive way—contact your Luxaire jobber, today.

WATER COOLED

The unsurpassed Luxaire Water Cooled Refrigeration Circuit is a complete unit, charged with Freon and sealed at the factory. When used with the Luxaire Combination Year 'Round Unit, it is contained completely within the furnace cabinet. When used as an Add-On Summer Air Conditioner, it is housed in its own compact cabinet and installed side-by-side with the furnace.



Luxaire Water Cooled Refrigeration Circuit for Combination Year 'Round Air Conditioner



Water Cooled Circuit as installed in Year 'Round Air Conditioner—2, 3 or 5 Ton Capacity



3 or 5 Ton Water Cooled Add-On Unit as installed with Winter Air Conditioner

THE C. A. OLSEN MANUFACTURING COMPANY . . . ELYRIA, OHIO

Luxaire

HEATING & AIR CONDITIONING UNITS

Federal Action Undertaken as House Starts Hit 8 Year Low

WASHINGTON, D.C. — The Labor department reported that new private home building in February dropped to the lowest level since May 1949. Builders started 62,500 units in Feb-

ruary, an increase of only 3,000 over January. Thus the usual seasonal upturn in February was much lower than anticipated. Last year in the same month builders started work on 77,000 private homes. Private home building in February was at a seasonally adjusted annual rate of 910,000 units.

On March 29, FHA down payment requirements for home buyers were reduced by 2 percent. This action, which benefits buyers in the lower and middle income groups, permits a down payment of 5 percent of the first \$9000 of FHA appraised value of a home plus 25 percent of the value in excess of \$9000.

Both Congress and the administration are considering further stimulus for building, although there is some feeling that mortgage money is becoming more plentiful, thus easing what is generally considered the principal cause of the housing downturn. Federal Housing Chief Albert Cole said, "I am confident that the supply of mortgage funds will improve in the near future."

Congress is currently considering programs that would increase direct federal lending as well as reducing the interest rate required on mortgages guaranteed by the Veterans Administration.

School Stimulates Wholesaler Training

MINNEAPOLIS — Wholesaler sales training received a boost upon the completion of another Wholesaler Integrated Development Approach session with an overflow class. The meeting was sponsored by the National Heating and Airconditioning Wholesalers Association in cooperation with Minneapolis-Honeywell Regulator Co.

The WIDA program is designed for upgrading and training of sales personnel and sales programming. Attending this session were heating and air conditioning wholesalers and several sales managers from manufacturing firms.

Charles Bennett, Chicago wholesaler, praised the school, saying he had never attended one with as much impact. "I am putting this new theory of running sales meetings and sales coaching into practice in my organization immediately," he said.



WHOLESALEERS attending the National Heating and Airconditioning Association's Minneapolis institute got the lowdown on the WIDA program and plenty of good ideas to take home

Tucson Congress Boosts ohl Program

TUCSON, ARIZ. — The Tucson Home Improvement National Congress in February gave the Operation Home Improvement program a boost. The meeting was attended by 160 leaders in the building materials, home equipment, and lending fields and from the federal government and local ohl committees. At the meeting the potential size of the repair and remodeling market was estimated at \$18 billion. But, it was pointed out, more effort will be required if this potential is to be realized.

The following points were presented at the meeting:

1) Everything possible should be done to encourage more cities to launch local programs.

2) Interest in home improvement has largely been accomplished through the generous support of consumer magazines.

3) The program's second objective — to make it easier for people to buy — still has a long way to go. Easy financing for five years is available, but needs to be sold by dealers, contractors and lenders.

4) The Congress endorsed the idea of May as "Better Your Living Month" and the entire industry was asked to pitch in to make it a success.

5) The home improvement market is a different business from new house construction, and should attract a bigger force of builders and contractors because of the steady profits to be made.

6) There is a great need for harder selling in competition with other industries for the consumer dollar. The women should be the target of greater effort.

7) As a national task force, ohl must be continued, but there is a real need for greater financial support from manufacturers who so far have benefited from the program but have not contributed funds to keep it going.



Mueller Climatrol[®]

Celebrating the beginning of the next...

**100 years of Leadership in
Cooling and Heating Equipment**

Never in a hundred years . . .
more cause for confidence



On this the occasion of Mueller Climatrol's Centennial, I like to view our company's history in terms of the future, rather than the past. To my mind, the first hundred years of Mueller Climatrol were not only years of accomplishment but also years of preparation.

Two great assets which we take into tomorrow are a heritage of this past century. First is *experience*—the knowledge of our customers' needs and wishes, and an intimate acquaintance with the heating and cooling field so essential to sound administration. We have also attained a reputation for *integrity* among both Mueller Climatrol users and the industry in general. This we will continue to nourish by adhering to the quality standards that fostered it.

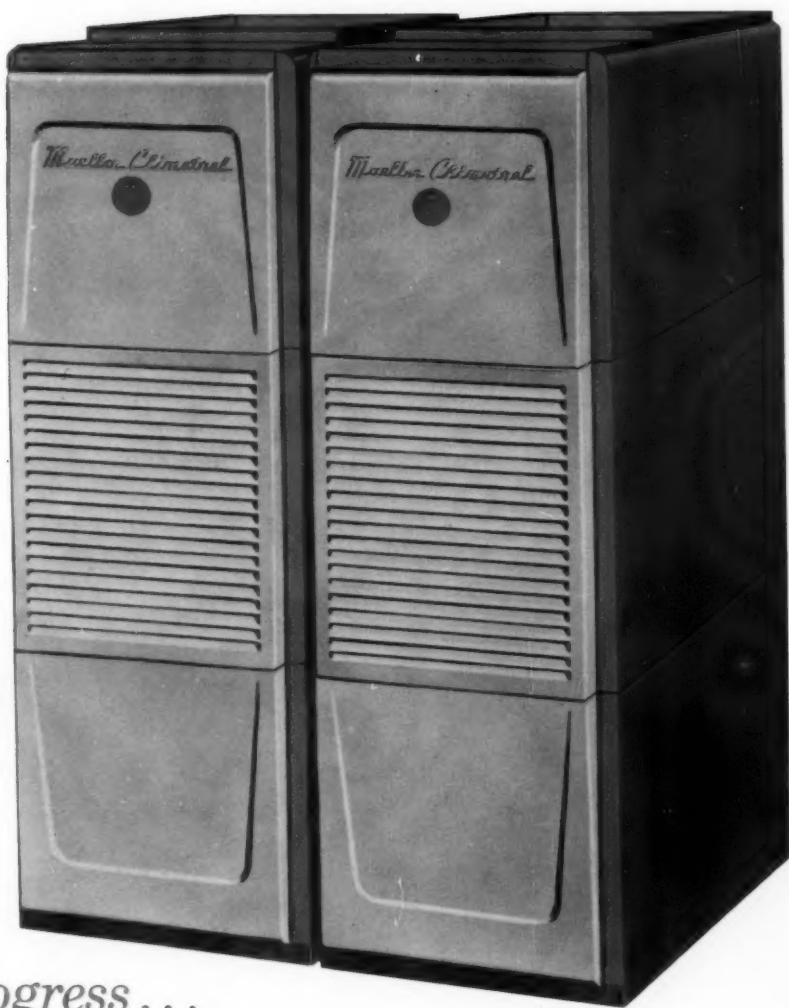
America is a land of success stories. It offers that perfect environment of freedom in which man's skills and ingenuity can truly thrive. I believe this freedom is the key to the history we view with pride.

A continuing spirit of accomplishment — so inspiring to men of initiative—is the bedrock of the future's promise. I am sure our company will be in the front lines of progress in the years to come . . . because I have confidence in our country and the free spirit for which it stands.

P R E S I D E N T

New *Comfort* Companions

by **Mueller Climatrol®**



*the look of progress . . .
brilliantly captured
in "years-ahead" design*

Here they are — Mueller Climatrol's new golden comfort twins—spearheading America's most complete, most advanced line of residential and commercial heating and cooling equipment.

Units like these are good reasons why so many thousands of people who prize their comfort consider Mueller Climatrol today's *biggest value for healthier, happier living*. Nothing they can buy repays them so handsomely—with health-protect-

ing warmth in winter . . . morale-saving coolness in summer . . . and performance measured in decades — not years!

Styled by Brooks Stevens, world-famous industrial designer, the golden comfort twins offer the ultimate in year-round air conditioning. And, of course, they can also be installed separately — starting with the heating companion . . . adding the cooling companion later.

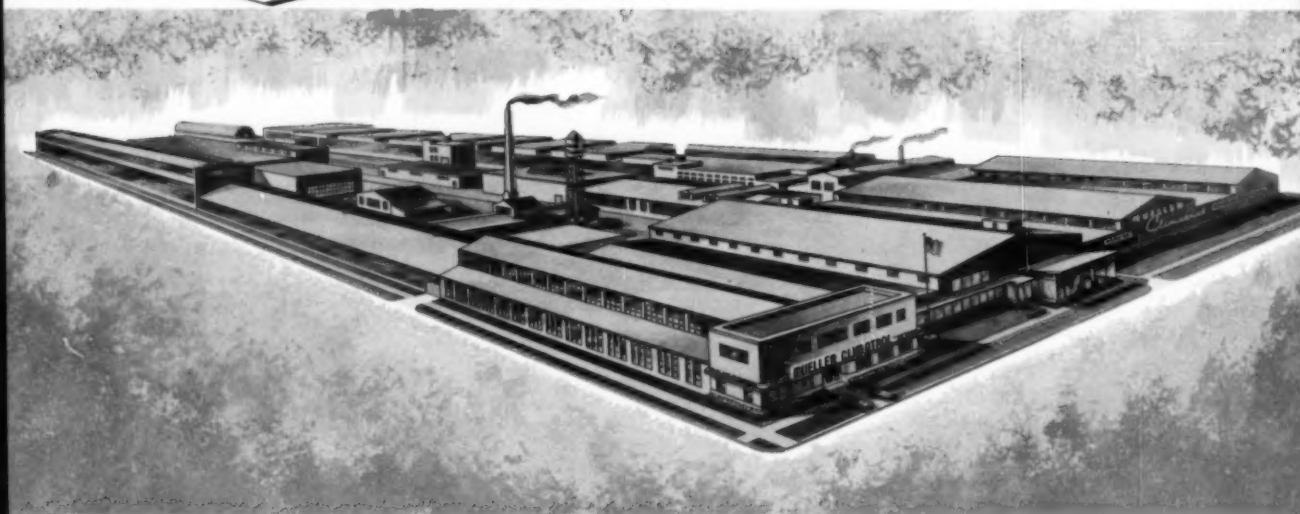
in *100* years...

from this...

Founded in 1857 by L. J. Mueller, Sr., this was the first factory . . . a modest frame structure, housing a combination hardware store and tin shop.



to this... *pacing progress...*



Today's modern Mueller Climatrol headquarters plant in Milwaukee covers 15 acres all at one central location. It offers employment to hun-

dreds of skilled workmen. Other manufacturing facilities are located at Alhambra, California; Decatur, Alabama; Canadian division at Toronto.

never in a hundred years

first
forced warm air
heating unit



Introduced by Mueller Climatrol in 1929. Sparking a new comfort era, the company offered a complete line of winter air conditioning equipment, including fans, filters and air washer units.

first
highboy winter
air conditioner



Pioneered by Mueller Climatrol in 1934. This revolutionary unit set completely new trends in furnace design — a compact heating package requiring a bare minimum of space.

first
convertible fuel
heating unit



Another Mueller Climatrol original in 1945. Permits installation of oil heating with low-cost conversion to gas. A great boon to homeowners, the development set the pace for other manufacturers.

first
with modular
heating and
cooling



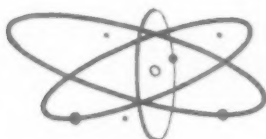
This Mueller Climatrol original makes it possible to buy a complete heating-cooling system in steps — starting with a gravity furnace, adding forced air and later cooling when in tune with the family budget.

first
with a new
year-round room
air conditioning idea



The 920 in-the-wall unit introduced by Mueller Climatrol offers self-contained cooling, using central steam or hot water facilities for heating—with room-by-room control and installation.

all the way



*and
that's
just
the
beginning!*

The products and developments illustrated and described on these pages are sign-posts forecasting even greater advances to come. They illustrate the continuity of progress by Mueller Climatrol. The continuation of this forward movement is assured by the dedicated creativity of Mueller Climatrol manufacturing and engineering personnel.

What of the future? Will tomorrow's heating unit utilize solar energy? Will we see electronic air conditioning? Will new developments in air filtration remove all germs from the home?

Whatever happens, you can be sure that Mueller Climatrol will stay on the move in the forefront of progress . . . will continue to come up with the *firsts* that mean more profits for you.

so proud a past—so promising a future

Products of Progress

In step with the dramatic growth of Mueller Climatrol as an organization, there has been tremendous advance in both quantity and quality of units. Today, Mueller Climatrol offers heating and cooling comfort in more forms than any other maker in America.

Among these there are highboys, lowboys, horizontal, counterflow and gravity heating units — for either gas or oil, warm air or fluid heat . . .

for commercial or residential use. In cooling, the many types of Mueller Climatrol waterless or water-cooled summer air conditioners cover the full field of cooling requirements.

To your customer, this complete and varied line brings assurance that whatever his comfort calls for in a size or type of unit, he can count on Mueller Climatrol.



PACKAGE COOLING UNITS . . .

Enable stores, shops and offices to satisfy both customers and employees with refreshing summer comfort. Available with hot water, steam or electric coils for heating.



ADD-ON COOLING UNITS . . .

Can be added to forced-air automatic heating systems for year-round comfort. Utilize existing ductwork. Optional blower available if needed.



SUBURBANAIRE® LINE . . .

A broad selection of high-quality heating units for oil or gas firing.

WATERLESS PACKAGE CENTRAL SYSTEM AIR CONDITIONING ▶

Especially adaptable for existing home installations, whatever the heating method. May be placed in attic, basement or crawl space.



Never in a hundred years...

by **Mueller Climatrol®**

*Americas most
Complete*
COMFORT LINE



UNIT HEATERS . . .

For gas or oil. Offer high profit potential for stores, filling stations, halls, restaurants, factories — wherever space heating problems exist in commercial buildings.



GAS BOILERS . . .

Many sizes, from multi-section hot water or steam models for commercial and industrial buildings to residential models painted gleaming white to match modern utility room appliances.



COMBINATION UNITS . . .

The latest concept in modern home comfort, with all-season air conditioning in one compact casing. Permits installation of heating first, addition of cooling later.

TRADITIONAL UNITS . . .

The supreme blend of beauty and top performance — not only control temperature year-round, but cleanse and condition the air. Highboy or lowboy styles. Mueller Climatrol also makes horizontally designed oil and gas heating units in a wide range of sizes.



so many means to perfect comfort

Never in a hundred years...
more reasons to sell

Mueller Climatrol®



★ A complete line

Systems for any fuel, any type of heating or cooling installation. With Mueller Climatrol, you can satisfy customers' comfort requirements, whatever they may be.



★ Century-strong experience

Through 100 years devoted solely to the making of heating and cooling equipment, Mueller Climatrol has first-hand acquaintance with the nation's comfort needs. What's more, today's Mueller Climatrol units combine the best in design innovations developed during a century of progress.



★ Progress-pacing designs

Beneath the attractive styling there is highly efficient performance designed for decades of economical operation. Year-in, year-out, Mueller Climatrol has pioneered design developments adopted throughout the industry.



★ Nation-wide demand

Mueller Climatrol heating and cooling is promoted and sold throughout the country. As a Mueller Climatrol dealer you are an important link in a service chain extending from coast to coast.



★ Precision manufacture

Modern equipment manned by skilled craftsmen... know-how based on a century of experience... careful testing and inspection—all contribute to maintaining Mueller Climatrol's unwavering standards of efficiency and reliability that save you service problems.



★ Near-at-hand parts service

As the local, qualified Mueller Climatrol representative, you have a vital "plus" to offer your customers. Parts depots are strategically located for delivery on an overnight basis in most areas to help you provide fast service.



★ Warranties

Mueller Climatrol returns your customers' confidence in the quality of our heating and cooling products with written warranties that underwrite long, trouble-free operation.

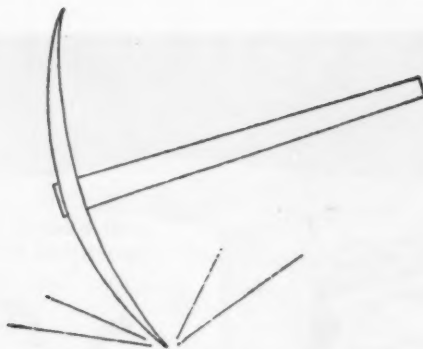


★ Respected name

Mueller Climatrol has grown to be one of the foremost names in heating and cooling equipment. You can be sure of the unit that wears it... confident of the quality that established it... assured of our efforts to maintain it.

PLUMBING, HEATING CONTRACTORS!

Getting new construction business takes plenty of smart digging. And Dodge Reports tell you where to dig. In short . . .



We can help you "dig up" business!

Put down the pick—and pick up your pen if you want to know about new construction jobs coming up in your area . . . and how to get invited to bid on just the kind of work you want. Read, fill out and mail this coupon today!

TO: DODGE REPORTS, 119 WEST 40th STREET, DEPT. 162, NEW YORK 18, N. Y.

Yes! I'd like to pin-point my prospects by knowing in advance who's going to build, what, when, where.

I want to know whom to contact and when to submit bids.

I'd like to see some Dodge Reports, and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service to get profitable business.

I understand that I can pick just the area and type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

I'm interested in General Building ☐ House Construction ☐ Engineering (Heavy Construction) ☐

in the Following Area: _____

NAME _____

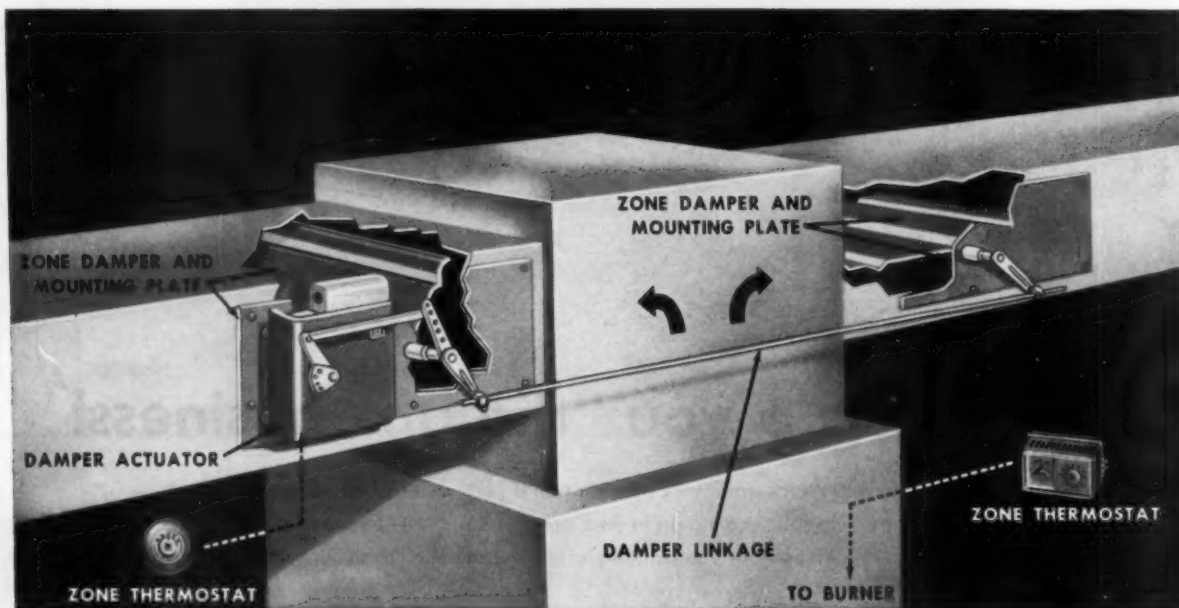
ADDRESS _____

CITY _____ ZONE _____ STATE _____



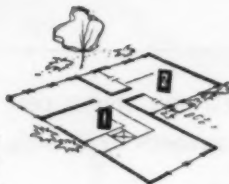
Get the most—in customer

with Honeywell



ABOVE you see a Honeywell two-zone Balancing System which uses only **ONE** Actuator to control the dampers for **TWO** zones. And it's done by means of a simple linkage.

Key to the whole system is a Honeywell *Modulating Damper Actuator*. This actuator operates dampers in the zone ducts to continuously increase or decrease



the heated or cooled air volume as called for by the thermostats. It's easily mounted on the ducts in five simple steps.

For complete, detailed information on the new Honeywell Warm Air Zone Rebalancing System or details on wet heat zoning equipment, call your local Honeywell office. Or write direct to Minneapolis-Honeywell, Dept. AA-4-123, Minneapolis 8, Minn.

5 Easy Steps To Install Honeywell Actuator-Damper Package

(Includes Honeywell D522A Damper, M829 modulating actuator motor with linkage and Q401A Mounting Plate)



Step 1—Determine where the damper is to be mounted and measure for the front and rear bearing surface. Honeywell Zone Rebalancing Kit contains all the necessary parts and instructions.



Step 2—Cardboard templates are provided in every Honeywell Zone Rebalancing Kit. By using a template and locating it over the previously scribed bearing location, damper slot can be cut out easily.



Step 3—After measuring width of duct, cut the damper to the length which is desired—cutting can be done quickly and easily. No other damper alterations are necessary for standard residential ducts.

satisfaction and job profits

Zone Rebalancing

You profit when you turn these 6 big problem areas into comfort areas.

1. Split-level homes with convection between floors
2. Finished basements
3. Spread-out floor plan with exposure differences
4. Living and sleeping areas
5. Large picture windows with variable heat gain and loss
6. Rooms over a garage or unheated areas

HERE's a modulating system that gets maximum comfort and efficiency out of your heating-cooling units.

Honeywell Zone Rebalancing means dividing the home into two or more comfort areas. The thermostat in each area continually adjusts the distribution of

heating or cooling to maintain the exact temperature requirement of each individual zone.

Honeywell Zone Rebalancing is an inexpensive yet unique comfort feature that will enable you to realize an extra profit margin on every job. And you'll be way ahead when it comes to customer satisfaction.

These time-tested Honeywell components make Zone Rebalancing the ultimate answer for heating-cooling installations.



M829A Modulating Motor can now be part of a low-cost single Actuator, 2-Zone Rebalancing system.



Simplified Wiring Panel for heating-cooling systems. Sturdily built for trouble-free performance.

Your choice of three thermostats



T 86, for heating. It comes with sealed, dust-proof mercury switch.



T 87, for heating-cooling. It's rugged, dependable and precision-built.



Electric Clock Thermostat for Automatic Set Back in heating.



Step 4—Drive the pointed damper shaft through the far side of the duct and insert damper. The mounting plate on the cutaway side is then easily fastened to the duct to hold damper in position.



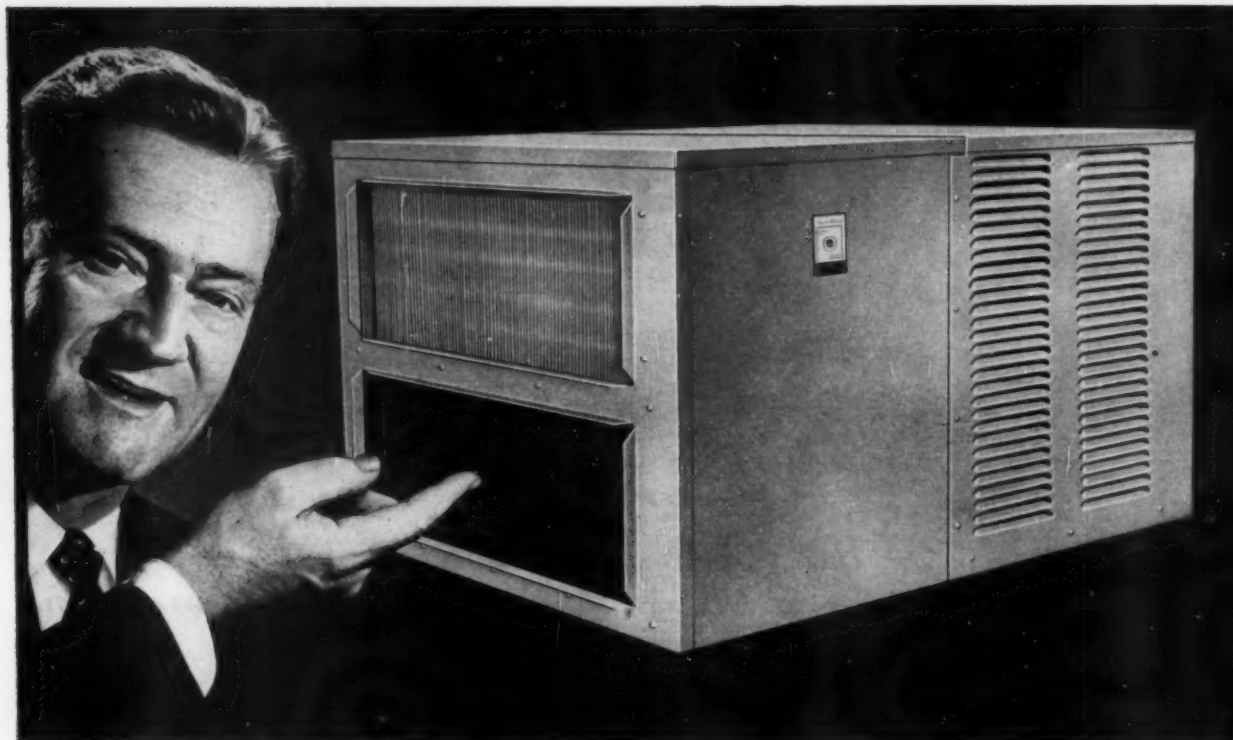
Step 5—Mount Actuator on mounting plate and connect linkage to damper shaft. The simple, low voltage wiring is then run to the wiring panel and thermostat to complete the entire installation.

Honeywell



First in Controls

NEW **A**merican-Standard AIR CONDITIONING



*Loaded with extra-quality
features to give you
the edge over
competition!*

Don't be misled by the competitive low price. This is a superbly engineered, quality-built unit that will do an A-1 air conditioning job in the small or medium size house. One reason it excels in its price class is *continuous* air circulation and dehumidification . . . gives your customer uniform 24-hour-a-day comfort! This is made possible by twin compressors: on extremely hot days one operates constantly, the other cuts in and out automatically as needed to maintain ideal temperature and humidity levels. The 2-hp and 3½-hp sizes give you the immediate opportunity to sell the *volume* market, win satisfied customers, and strengthen your position as an air conditioning specialist.

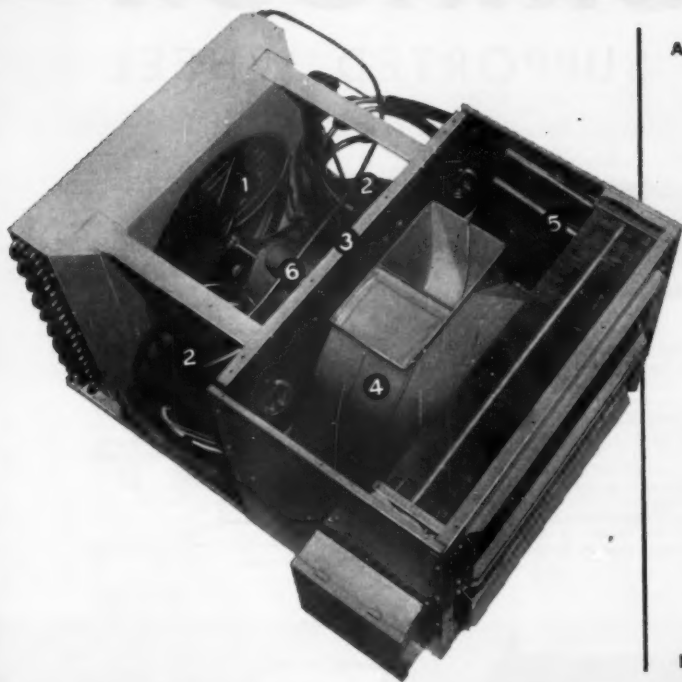
SELL ON **A**merican-Standard
HOME COMFORT PAYMENT PLAN—
NO MONEY DOWN—TERMS UP TO 36 MONTHS

NEW! American-Standard PRE-FABRICATED DUCT SYSTEM

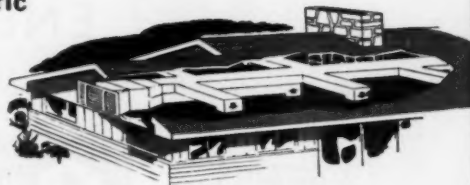
Kit includes pre-fabricated, pre-cut, aluminum-clad fiber glass ducts, air diffusers, return grille and filter. Speeds installation . . . adds extra profit to every job.

\$499⁵⁰
Suggested
Retail Price

AIR-COOLED PACKAGE READY NOW!

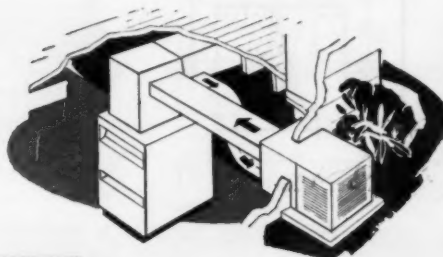


ATTIC



Quick, Easy Installation

The self-contained, air-cooled unit tucks away in attic, in crawl space under house or can be extended through house wall.



BASEMENT

① SPECIALLY DESIGNED CONDENSER FAN draws in huge volumes of fresh, outside air for maximum efficiency. Moisture removed from the inside air during cooling is blown against the condenser, adding extra cooling capacity.

② POWERFUL TWIN COMPRESSORS instead of the usual one. Single compressor maintains proper humidity and temperature on normal summer days; on extremely hot days both compressors operate to insure complete comfort.

③ 100% HERMETICALLY SEALED refrigerant circuit covered by 5-Year Protection Plan.

④ HIGH-CAPACITY EVAPORATOR BLOWER is whisper-quiet and balanced to the extra-large cooling coil area; engineered for comfortable, draft-free air delivery.

⑤ EXCLUSIVE HEAT EXCHANGER utilizes "cold" gas leaving evaporator to reduce temperature of "hot" liquid refrigerant entering the cooling coil by as much as 20 degrees. No cooling capacity is wasted—it's all kept inside the house.

⑥ PERMANENT SPLIT-CAPACITOR MOTORS are resilient mounted and thermal overload protected for quietness and improved safety.

Contact your American-Standard Air Conditioning Distributor listed in the yellow pages of your telephone directory

AMERICAN-Standard

AIR CONDITIONING DIVISION

ELYRIA, OHIO

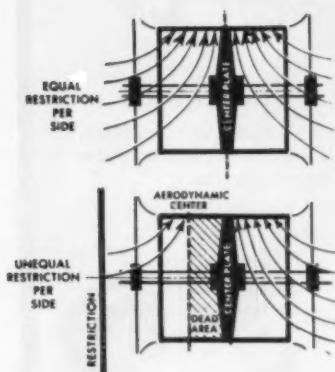


7 WAYS

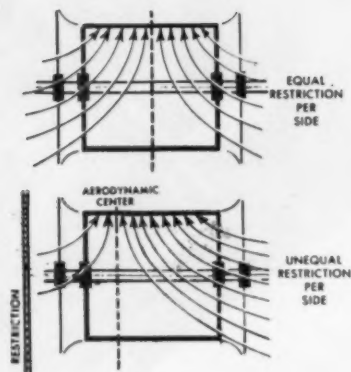
MORRISON END SUPPORTED WHEEL

1

MAXIMUM UTILIZATION WITH END SUPPORTED WHEEL

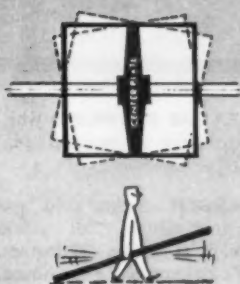


When inlet conditions are unrestricted, the aerodynamic center is in the exact geometric center in both Morrison End Supported wheels and center plate wheels. BUT — when one inlet of the blower is more restricted than the other, the aerodynamic center in a Morrison End Supported wheel, moves toward the restricted side permitting greater utilization of the unrestricted side as illustrated. In a center supported wheel, the restricted side of the blower is starved and the unrestricted side is unable to compensate for it.

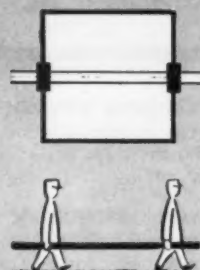


2

STABLE SUPPORT WITH END SUPPORTED WHEEL

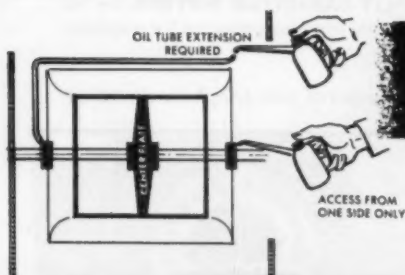


Morrison End Supported Wheels are mounted stably on the shaft, eliminating rocking action that causes wheel wobble.

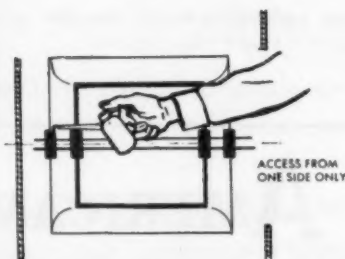


3

EASY MAINTENANCE WITH END SUPPORTED WHEEL

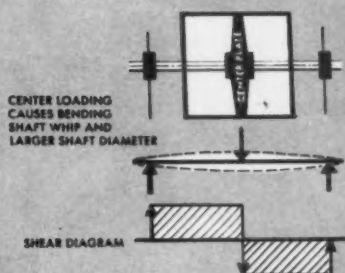
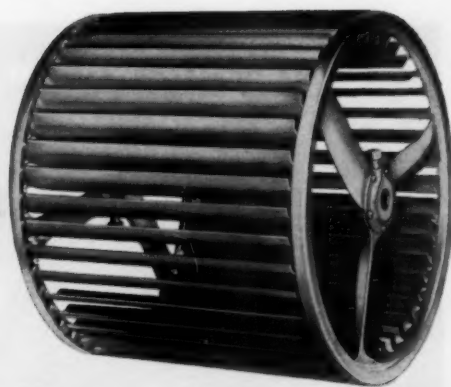


With Morrison End Supported Wheel, oiling is easy. You oil one end — and as the drawing shows — reach through the wheel to oil the other end. No complicated tube extension is necessary.



MORRISON PRODUCTS, INC.

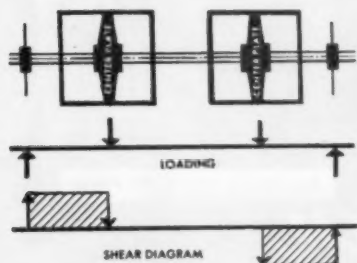
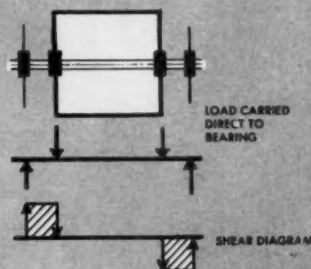
BETTER!



4

MINIMUM SHAFT LOADING WITH END SUPPORTED WHEEL

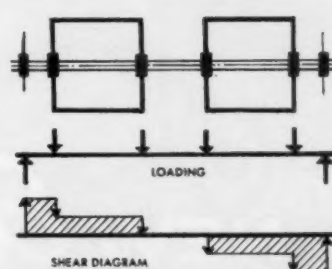
Morrison End Supported Wheel relieves strain as load is carried directly to bearings. There is no shaft whip. Center Plate Wheels put added strain on the shaft, causing bending, shaft whip and require larger shafting.



5

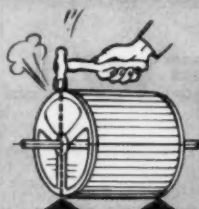
UNIFORM DISTRIBUTION (for Twin Blowers) WITH END SUPPORTED WHEEL

Uniform distribution of load allows using smaller shafting. Heavy concentrated load causes shaft whip and larger shafting.



6

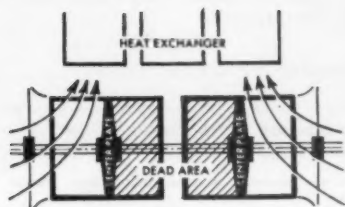
STRONGER FRAME WITH END SUPPORTED WHEEL



In the case of Morrison End Supported wheel, impact on the end of the wheel is directly supported by sturdy end rings.

Impact on end of center plate wheel lacks sturdiness and distortion results.

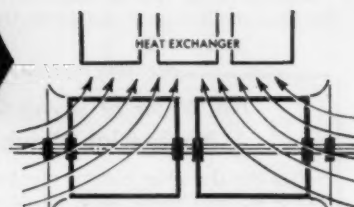
Aids safe shipment.



7

EXTRA WHEEL ADVANTAGES WITH END SUPPORTED WHEEL

In special applications of two wheels for wide air distribution, the attached drawing shows plainly the greater distribution of air possible with the End Supported Wheel.



16816 Waterloo Road • Cleveland 10, Ohio

Keeps the whole house clean electronically!

NEW *Electro-Klean*

Electronic Home Air Filter

NEW LOW PRICE

One-half the Cost of Competitive Units!

Every homeowner in your locality has a dirt and dust problem. They're all grade A prospects for you when you sell *Electro-Klean*!

Electro-Klean Electronic Home Air Filter solves the household dust problem at the source . . . catches

airborne dust and pollen like a magnet attracts and holds bits of iron. *Electro-Klean* actually "house-cleans" every room in the house all day long, every day in the year . . . *actually traps up to 20 times more dirt than throw-away filters!* Yet the cost is small . . . just one-half the price of comparable units. Any home can now afford *electronic* air filtration!

Simple Installation!

No Water or Sewer Connection No Special Wiring Circuit

You can do a big volume electronic air filter business without extra help. *Electro-Klean* is quickly installed in the air return of any forced air furnace or air conditioning system.

No after-service problems. Fully guaranteed. No plates to wash. No wires to break. No moving parts to get out of order.

Mail Coupon for details, NOW!



a product of the world's largest manufacturer of air filters
AMERICAN AIR FILTER COMPANY, INC.
355 Central Avenue, Louisville 8, Ky.

Send me details of the new promotion plan for *Electro-Klean*, descriptions, pictures and prices.

NAME _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Now, Westinghouse introduces

THE *Excitement of Color*

TO COMMERCIAL AIR CONDITIONING!



MEN'S SHOP



BEAUTY PARLOR

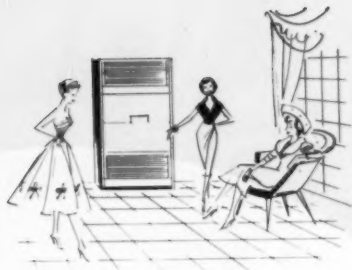


AUTOMOBILE SHOWROOM

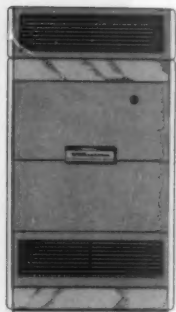


FURNITURE STORE

Decor-Matched to Any Installation



New Westinghouse
STYLE-MASTER
Commercial Air Conditioning



New Style-Master Units Give You **THE RIGHT COLOR COMBINATION** for Every Customer!

Now, you have a complete selection of 15 combinations of two-tone color and harmonizing trim, to blend with the interior decor of any store or office. Smartly styled in smoothly flowing lines, the new Style-Master units can be easily installed in a minimum of space—with or without ducts. They deliver maximum cool comfort quietly and automatically—with style and beauty.

Whatever the business, you can match its interior decor with the new Westinghouse Style-Master line. Available in five basic two-tone combinations with sparkling silver, gold or bronze trim—15 combinations in all. What's more, you get this tremendous range of color with minimum inventory. Color panels and trim strips are readily interchangeable . . . slip in or out in a jiffy. This means that you can give each customer the desired color combination with minimum effort.

The smooth lines of all Style-Master units make them easy to install with or without ducts—flush-to-wall, in corner, behind counter or in storage area. Style-Masters are available within a range of 30,000 to 110,000 BTU's per hour, with air or water-cooled condensers. Best of all, they are *whisper quiet* . . . completely insulated cabinets, spring mounted compressors and vibration-free components all combine to deliver maximum cooling with minimum sound.

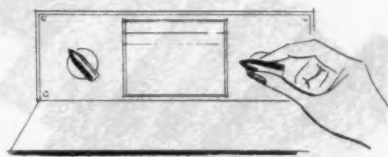
INTERCHANGEABLE PANELS!

Style-Master front panels and colorful aluminum trim strips come in kits ready for easy "slip-in" installation . . . 15 combinations of color and trim in all . . . harmonize with any decor.



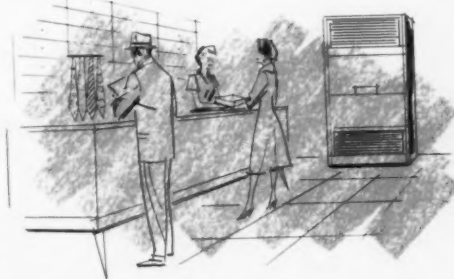
COOL AUTOMATICALLY!

A finger-tip touch of the thermostat gives the exact temperature desired. Keeps temperature in balance with store traffic, regardless of outside temperature.



FOR STORES!

Whatever the business, men's shop, beauty parlor, furniture store, fashion salon, automobile showroom, and more—you can sell complete air conditioned comfort with style and color.



FOR OFFICES!

New Style-Master units will blend with furniture or office fixtures without wasting space. They'll keep the entire office comfortably cool—automatically and quietly.



Cooling . . . Color . . . Style, and . . .

A complete profit family FOR EVERY AIR CONDITIONING NEED!



New Match-Master Units . . . match the exact cooling needs of your customer. Air cooled, they need no expensive water towers or plumbing . . . can be used with or without ducts.



New Flex-Master Units . . . the economy model for commercial cooling. Comes in two-tone beige and charcoal only. Available in air or water-cooled models covering a range of 30,000 to 110,000 BTU's per hour.



New Ease-Master Units . . . ideal for the smaller home, store or office. Air cooled, they need no water. Install in any out-of-the-way space—can even be suspended from ceilings.



Custom-Master Units . . . for large area cooling in stores, offices or plants. Can be installed with or without ducts. Deliver 123,000 to 180,000 BTU's per hour.



Value-Master Units . . . heat and cool—automatically! Offer complete year-round air conditioning to any home . . . slip-in cooling unit can be added at any time. Cooling range 20,000 to 48,000 BTU/hr. Heating range 90,000 to 130,000 BTU/hr.

PLUS...ALL NEW WESTINGHOUSE GAS AND OIL-FIRED FURNACES

Basement Units

Heating capacity—
BTU/hr. Gas-input
85,000 to 200,000.
Oil-output 85,000
to 134,000.



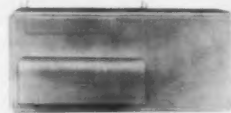
Counterflow Units

Heating capacity—
BTU/hr. Gas-input
85,000 to 125,000.
Oil-output 85,000
to 123,000.



Utility Units

Heating capacity—
BTU/hr. Gas-input
85,000 to 150,000. Oil-output
85,000 to 123,000.



Horizontal Units . . . Heating capacity—
BTU/hr. Gas-input 80,000 to 140,000.

NEW Westinghouse furnaces were designed with air conditioning in mind. Easily combine to give year-round air conditioned comfort to any home.

WITH WESTINGHOUSE YOU GET STYLE, COLOR.....*Plus!*

FAST DELIVERY . . . direct-from-factory or from distributor nearest you. You get the unit you want, where you want it—when you want it.

SALES TRAINING . . . for you and your staff. Sales presentations, literature, heat load calculators, duct-calculators—everything you need.

TECHNICAL AID . . . from factory sales engineers. They will help you solve any air conditioning problem . . . show you how to get maximum efficiency with minimum effort.

FINANCIAL PLANS . . . to fit your sales and business needs.

ADVERTISING . . . where it counts most—

in your own local selling area. Westinghouse backs you with powerful regional advertising, plus a liberal co-op ad program.

SALES PROMOTION . . . that builds your name and business. Westinghouse brings you the plan and materials for your own dynamic promotion program.

PROFITS . . . with the only really-new family of products in the air conditioning and heating industry—for every residential and commercial prospect.

These are just some of the reasons why the Westinghouse franchise is so highly valued by leading contractors and dealers throughout the country.

YOU CAN BE SURE...IF IT'S Westinghouse

AIR CONDITIONING DIVISION • STAUNTON, VIRGINIA



SOLVE STAINLESS-STEEL SUPPLY PROBLEMS

If selecting or securing the right grade or form of stainless steel has been tying your production schedule in knots, check the list below. It contains the name of your nearest Republic ENDURO Stainless Steel Distributor. He can furnish expert help in selecting the exact grade you need to meet both product and production requirements.

His complete stock, including more than 30 different grades of ENDURO Stainless Steel, is your assurance of securing the steel you need in a hurry.

So to solve stainless steel source-of-supply problems, contact your Republic ENDURO Distributor. A phone call will bring immediate service.



REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

CALL YOUR REPUBLIC ENDURO® STAINLESS STEEL DISTRIBUTOR

ARIZONA

Ducommun Metals & Supply Co.
Phoenix,

CALIFORNIA

Ducommun Metals & Supply Co.
Berkeley 10,
Los Angeles 54,
San Diego,
E. M. Jorgensen Company
Los Angeles 54,
Oakland 23,

COLORADO

Marsh Steel Corporation
Denver 16,

CONNECTICUT

Edgcomb Steel of New England,
Incorporated
Milford,

FLORIDA

Caulley Steel & Supply Co.
Fort Lauderdale,
Miami,
Orlando,
Eagle Roofing & Art Metal Works
Tampa,

GEORGIA

Atlantic Steel Company
Atlanta,
Southern States Iron Roofing Co.
Atlanta,
J. M. Tull Metal & Supply Co., Inc.
Atlanta,

ILLINOIS

Chicago Steel Service Company
Chicago 32,

INDIANA

Ohio Valley Hdw. & Roofing Co.
Evansville,

INDIANA, (Cont.)

Hubbell Metals Inc.
Indianapolis 2,

KANSAS

Marsh Steel Corporation
Wichita,

KENTUCKY

Williams and Company, Inc.
Louisville 3,

LOUISIANA

Marsh Steel Co.
Baton Rouge,

MARYLAND

The Hill Chase Steel Co. of
Maryland
Baltimore 3,

MICHIGAN

Huron Steel Company
Detroit 16,

MISSOURI

Hubbell Metals Inc.
North Kansas City,
St. Louis 3,
Marsh Steel Corporation
Kansas City 16,
Hammond Sheet Metals Co.
St. Louis 5,

NEW HAMPSHIRE

Edgcomb Steel of New England, Inc.
Nashua,

NEW JERSEY

Atlas Steel Supply
Morris Plains,
International Corporation
Hillside,
Miller Steel Co., Inc.
Hillside,

NEW JERSEY (Cont.)

The Kenilworth Steel Co.
Kenilworth,
Benedict Miller, Inc.
Lyndhurst,

NEW YORK

Atlas Supply Company, Inc.
Bronx 58,
Beals, McCarthy & Rogers, Inc.
Buffalo 5,
Brace Mueller & Huntley, Inc.
Buffalo,
Rochester,
Syracuse,
K & S Metal Supply, Inc.
Long Island City 1,
Bruce & Cook, Inc.
New York,
Eastern Metals Warehouse, Inc.
West Albany,

NORTH CAROLINA

Metal Service Corp.
Charlotte,
Vance Iron & Steel Company,
Charlotte,

OHIO

Williams and Company, Inc.
Cincinnati 29,
Cleveland 14,
Columbus 8,
Toledo 12,
Vorys Brothers
Columbus,
Ohio Metal & Manufacturing Co.
Dayton 2,

OKLAHOMA

E. M. Jorgensen Company
Tulsa,

OREGON

American Steel Warehouse
Portland 14,
Pacific Metal Company
Portland 9,
Woodbury & Co.
Portland 4,

PENNSYLVANIA

The Warren Company
Erie,
Hill Chase & Company
Philadelphia,
Potts-Farrington Company
Philadelphia 29,
Horace T. Potts Co.
Philadelphia,
Williams and Company, Inc.
Pittsburgh 33,

RHODE ISLAND

Edgcomb Steel of New England,
Incorporated
Pawtucket,

TENNESSEE

Siskin Steel and Supply Co.
Chattanooga,
Vance Iron and Steel Company
Chattanooga,
Hubbell Metals Inc.
Memphis,

VIRGINIA

Dominion Culvert & Metal, Inc.
Roanoke 5,

WASHINGTON

Pacific Metal Company
Seattle 4,

CANADA

Drummond, McCall & Co., Ltd.
Toronto, Ontario,
Montreal, Quebec

"HOW COME YE'R
OUT HERE SELLIN'
AIR CONDITIONING, J. P.?"

"BECAUSE ONLY
ARMSTRONG CAN DO
THE BIG AIR CONDITIONING
JOB!"



"WHY, Armstrong can almost make the Belgian Congo comfortable, Sam. 'Course, this isn't my territory, but the natives here got restless for top Armstrong quality. They know a cool deal when they see it, Sam! And no wonder! Just look at what Armstrong air conditioning has to offer . . .



- **EXTRA-LARGE "6-IN-1" COOLING COIL** — six separate coils in one unit! — Big coil surface gives full capacity cooling without strain.
- **THERMOSTATIC EXPANSION VALVE** — full Freon charge evenly distributed through 6 injector tubes. Outperforms any other kind of unit by a mile, Sam!
- **HEAVY-DUTY CONDENSING UNIT** — "whisper quiet", softest soundin' unit made, Sam. Extra-large condenser with Freon reservoir makes quicker, more complete cooling, and the condenser is in a beautiful, durable aluminized steel cabinet, installed remotely . . . that's away from the coil, Sam.
- **ARMSTRONG HAS A COMPLETE LINE**, too, Sam. Up-flow, down-flow and horizontal flow coils, and companion units. Then there's the neat, new Custom model . . . so compact and flexible . . . most versatile air conditioner ever made! And that terrific new line of Armstrong commercial space coolers, too, Sam — all the way from 3 to 15 tons!
- **THEY'RE A SNAP TO INSTALL, TOO, SAM.** I'm tellin' you this Armstrong line's really the heatin' man's line. Easy to put in, easy to maintain. No fancy tricks, just a darn good unit . . . the best, Sam!

You see, Sam . . . you can sell Armstrong air conditioners all the way from Tanganyika* to Topeka, because they're tops in quality . . . And you won't need a safari to lug around your inventory, either . . . an Armstrong wholesaler does that for you."



"BY GOLLY, J. P., that really sounds great! Do you think I can get into air conditioning in a big way with Armstrong?"

"Sure can, Sam . . . and you won't need that fan either, 'cause there's no sweat when you're an Armstrong dealer. You can make cold cash *anyplace* when you're an Armstrong dealer. Call your Armstrong wholesaler today . . . right now, Sam!"

*"That's in Africa, Sam".

And just look at this wonderful Armstrong "Coolerama" Promotion

Real top-flight merchandising material to help you sell Air Conditioning

- **"SALESMAN"** sound film strip—10-minute light, bright and selling story of Armstrong Air Conditioning.
- **AIR CONDITIONING "VISUALIZER"** — terrific, hard-selling book of pictures that gets right down to the nuts and bolts of an Armstrong air conditioner.
- **RADIO AND TELEVISION SCRIPTS** — that sell, sell, sell the convenience of Armstrong Air Conditioning.
- **NEWSPAPER ADVERTISING MATS** — real eye-catchers that sell you and Armstrong.
- **BANNERS** — to dress up your store . . . let people know you're in business.
- **DECALS** — act as continuous, silent salesmen for you wherever you use them.
- **DIRECT MAIL** — a series of clever, colorful mailing pieces for your homeowner or business prospects.
- **NATIONAL ADVERTISING** — sells the name of Armstrong and its quality . . . builds prestige for you.

And, Armstrong has been selected by the editors of "Show House" — modern living feature of "Saturday Evening Post" and "Living for Young Homemakers" — to participate in this year's "Show House" promotion. It's a big, colorful, 2-page blast on ideal living in the finest surroundings, with Armstrong supplying the climate! Watch for it!



YOUR ARMSTRONG WHOLESALER

ready to assist you . . . all-ways



ARMSTRONG FURNACE COMPANY, Columbus 8, Ohio
Division of National Union Electric Corporation

NOW...
 reduce heavy gage pipe-joining time **50%**



One edge of each segment is offset. Plain edge fits snugly into flanged piece with no obstructions.

NIAGARA

*Patent Pending



Here's a brand new operation that can be performed by versatile Niagara Combination Rotary Machines, both hand and power models. Round, heavy gage elbows and pipe for industrial blower, exhaust and conveyance systems can now be joined in half the time. Exclusive, new, Niagara Offset Rolls and Gage* reduce edging to a single operation.



"Since we've been using Niagara's new Offset Rolls on our Niagara Rotary Machines, we've cut fabrication time for welded elbows in half. One edging and one hand forming operation have been eliminated from each joint," says T. Merz, industrial sheet metal fabricator.

Obtain full details not only on this new operation, but on the numerous jobs performed by Niagara's extensive line of Rotary Machines of all types. Request new Offset Roll Supplement, as well as Rotary Bulletin 75C.



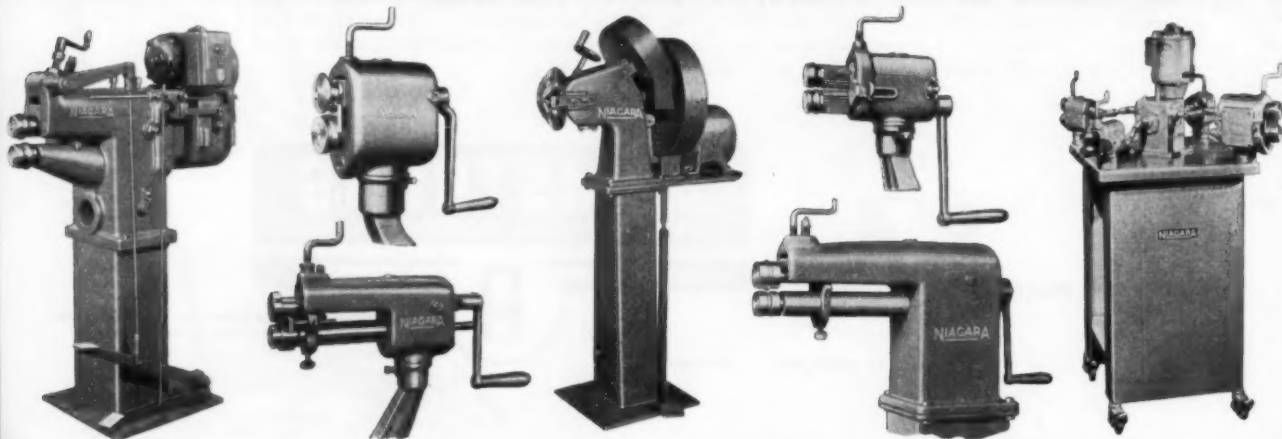
NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N. Y.

DISTRICT OFFICES

Buffalo • Cleveland • Detroit • Indianapolis • New York • Philadelphia
 Distributors in principal U.S. cities and major foreign countries

America's most complete line of presses, press brakes, shears, other machines and tools for plate and sheet metal work.

ROTARY MACHINES





COMPACT
Winter Air Conditioner
Gas Fired is 26" deep,
34" high.
Oil Fired is 26" deep,
62" high.

ADAPTABLE
Winter Air
Conditioner
is shown with
matching enamelled
Return Air
Cabinet.



COUNTERFLOW
Winter Air
Conditioner
has equal
compactness
and good looks.



COOLING COIL
can be added
with ample
space remaining
for connection
of ducts.



You'll Find
TREMENDOUS
ADVANTAGES
in the NEW
MONCRIEF
Gas Furnaces and Oil Furnaces !

Styled Right...Built Right...Priced Right for 1957 Competition!

Better Looking!

You can see the advantages . . . Totally new, compact design that is original and distinctive! Completely concealed burners and controls! Attractively rounded corners! Rich finish of charcoal and light grey enamel that blends anywhere!

Better Construction!

You can feel the advantages . . . Sturdy, solid, tight construction! The same ruggedness for which Moncrief has been famous for over 60 years!

Lower in Price!

Now, price these advantages . . . Much lower than you would expect for this excellence! Made possible by the greatest investment for tooling in Moncrief's history!

Moncrief invites you to compare . . .

Are you looking for a furnace that will permit you to compete at a cheap furnace price, but will make it possible to actually improve the furnace quality of your installations?

Would you prefer to install a furnace that is completely assembled and wired at the factory, Oil as well as Gas?

Do you want to be able to tell your customers that the furnace you are installing has provision in its design to add the extra blower capacity needed for cooling?

With the totally new Moncrief Gas Fired and Oil Fired Winter Air Conditioners, the answer is a positive yes.

See your Moncrief Wholesaler, today!

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

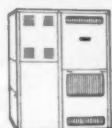
MONCRIEF
SINCE 1901

FURNACE PIPE AND FITTINGS

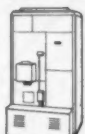
It's MONCRIEF for the Complete Line of Air Cooled and Water Cooled Air Conditioning Units



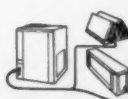
2 or 3 Ton Combination
Year 'Round Air
Conditioner. Gas or
Oil Fired. Air or
Water Cooled.



5 Ton Combination
Year 'Round Air
Conditioner. Gas or
Oil Fired. Air or
Water Cooled.



2 or 3 Ton Counterflow
Combination Year
'Round Unit.
Gas or Oil Fired.
Air or Water Cooled.

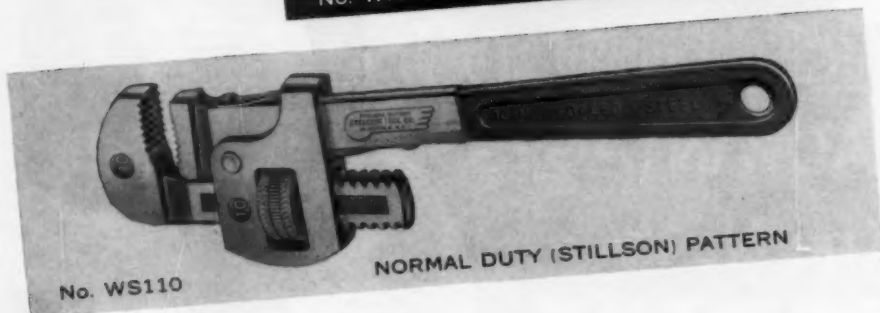


2, 3 or 5 Ton Air Cooled
Add-On Summer Air
Conditioner. Air Cooled
Condenser-Compressor Unit
with choice of "V" (Plenum)
or "Flat" (Duct) Cooling Coil.



3 or 5 Ton Water Cooled
Add-On Summer Air
Conditioner shown
as installed with
Winter Air Conditioner.

*Brand
New!*



*Ready
Now!*

CRESCENT PIPE WRENCHES

HEAVY DUTY PATTERN... A really heavy duty wrench, far exceeding U. S. Government Type II Specifications. Hook and Heel Jaws of special analysis steel, triple-heat treated. Alloy handle combines high tensile strength and light weight. Seven sizes, 6" to 24". Finished with flat surfaces polished...red enamel handles.

NORMAL DUTY (STILLSON) PATTERN... Meets U. S. Government Type I Specifications. Fully heat treated, forged steel handle and jaws. "Floating" housing assures positive grip and instant release. Six sizes, 6" to 24". Finished with flat surfaces polished...red enamel handles. Your jobber has these tools in stock now.



CRESCENT and CRESTOLY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK



Dealers "in the know" recognize that this sign means:

"Quality Heating is being installed here"

• NIAGARA builds quality "year 'round air conditioning" equipment which will provide years of dependable service. Because of this quality, NIAGARA also builds profits for heating dealers.

NIAGARA furnaces are gas or oil fired and available in many capacities and models to fit practically every home heating requirement. If you want the "cream of the crop" there is no finer furnace than the NIAGARA Series 50. For economy purposes the quality-built NIAGARA Series 70 furnace "fits the bill".

Get the facts. Find out how NIAGARA offers you the opportunity to sell quality heating and build profits for yourself.

For complete information, write direct or contact your NIAGARA distributor.

NIAGARA FURNACE DIVISION

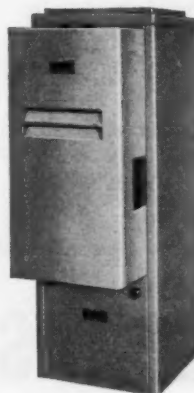
The Forest City Foundries Co.
2500 West 27th St. — Cleveland 13, Ohio

NIAGARA Series 50



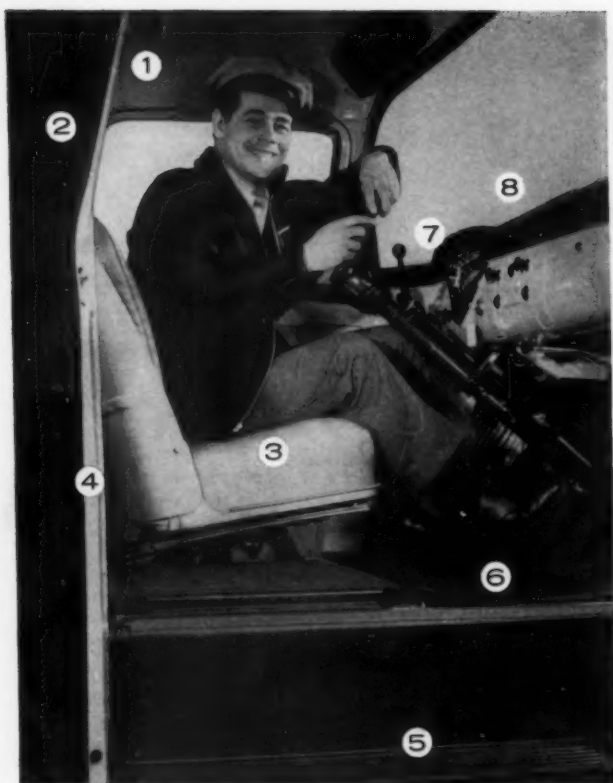
The finest gas-fired furnace line available for home heating. Equipped with the exclusive NIAGARA cast iron heat exchanger and 3-speed blower. Completely automatic. NIAGARA refrigerated unit can be combined to provide the best in "year 'round air conditioning."

NIAGARA Series 70

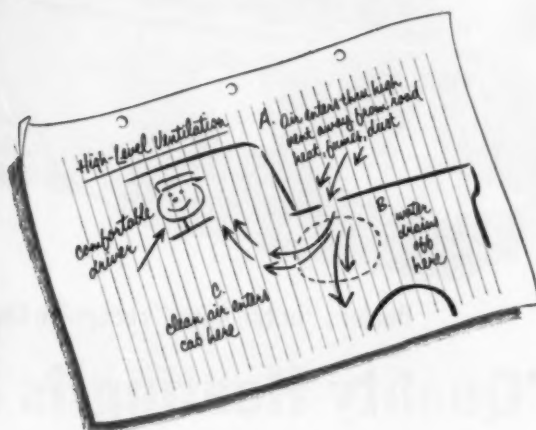


The low-cost quality furnace line with High Boy, Down Flow and Basement Models. Completely automatic, gas or oil fired, available in a wide range of sizes.





in a Chevy panel,
even the
air is better!



... more evidence that Chevrolet Task-Force Trucks are engineered better and built better for bigger savings!

These features give you extra comfort and safety behind the wheel, extra savings on truck maintenance. And they're proof that the most modern trucks for your money are Chevrolets!

The drawing "doodled" above shows how Chevy's High-Level ventilation provides a comfortable interior . . . and the numbers in the big picture point out other advantages equally as good to have around you when you haul! They include:

1 A driver compartment roof that's specially built for safer, more comfortable hauling. Sturdy all-steel turret-top construction adds to safety; inner reinforcement provides a "dead air chamber" that insulates the overhead against heat.

2 A gleaming, durable baked enamel outside finish. Here's the reason your Chevy's exterior will resist wear better, look like new longer!

3 A soft-riding seat that beats the bumps! Deep-comfort coil springs and a padded, form-fitting seat back let you take it easy on tough jobs!

4 A body that's rustproofed to last! Doors and similar surfaces are rustproofed on the inside as well as on the outside by immersion.

5 Concealed Safety Steps for convenience. Inside each door, they give you firmer footing, make entering or leaving the truck easier and safer.

6 An undercoated floor, cowl side panels and fender flanges. Most exposed surfaces on the underside of the body are protected by an anti-rust coating.

7 A non-glare instrument panel to make driving safer! The textured finish on upper portion of Chevy's instrument panel reduces blinding sun reflections, minimizes eyestrain.

8 A reliable 2-speed electric windshield wiper* on each side. Powered by electricity, their action remains constant under all conditions.

Such advantages as these (we've shown only a few) combine to make *everything* better in a 1957 Chevrolet truck! You'll see for yourself when you visit your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

*Optional at extra cost.

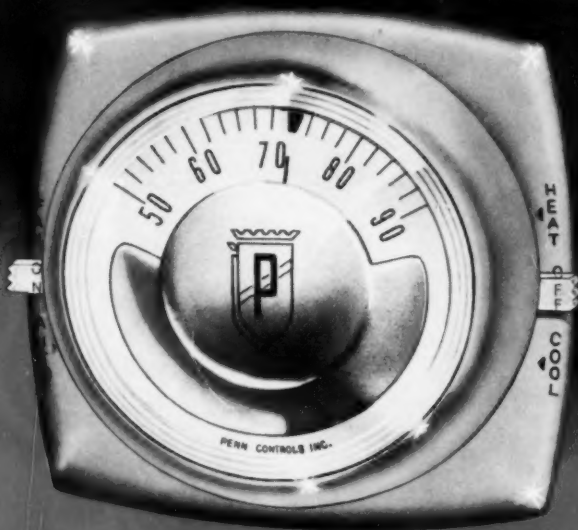
... biggest sellers because they're the biggest savers!

CHEVROLET

CHEVROLET TASK-FORCE 57 TRUCKS

TODAY'S
EASIEST-TO-READ

room thermostat



Actual Size
Illustration

IT'S NEW! ... IT'S RIM-SET! ...

AND ONLY PENN HAS IT!



Installation is simpler. The adjustable heat anticipator and all wiring is on sub-base where large terminals are easily accessible. Then, the thermostat is simply plugged into the sub-base. Accurate operation is assured even if sub-base is not installed in a level position. Temperature is held within 1 degree.

- ... you get more selling features
- ... easier installation
- ... and reduced inventory

Now ... the newest, most beautiful look in room thermostats without sacrificing snap-acting contact action ... the action that is proven to be the very best for sturdiness and long-life dependability. This thermostat has the largest, most easily read dial you've ever seen. And, the scale remains stationary as you dial the rim to set the temperature you want.

Various sub-bases are available for heating alone ... for cooling only ... or for combination heating-cooling systems. And, the *same thermostat* can be used with *any* sub-base. Thus, inventory is reduced ... just stock variables of the sub-base.

Once you see this new, different, better thermostat, you'll want to specify and install it on your heating and cooling jobs.

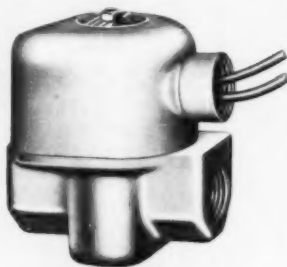
AND, THERE'S MORE . . .

remember...

PENN CONTROLS ALWAYS DELIVER THE YEAR 'ROUND COMFORT YOU SELL!



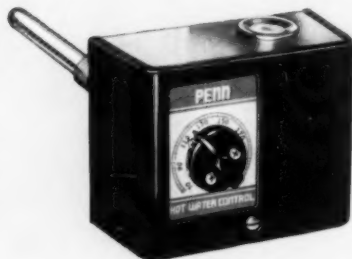
New oil burner stack switch with today's most advanced features. Type 680 for continuous and Type 682 for intermittent ignition.



Type 926 gas valve with straight-through flow and vertical self-cleaning seat. Pressure regulators and pilots available.



Type 520 liquid expansion combination fan and limit control with calibrated dials for warm air furnaces.



Type 442 safety limit or operating immersion control with "trigger-quick" response for hot water jobs.



Series 753 air conditioning control center for self-contained package air conditioning for either residential or commercial jobs.

Each time you sell and install a heating, cooling or combination heating and cooling system, you sell one main benefit... control of indoor temperature for true living comfort! That's why automatic controls are so important.

So, a good thing to remember is that you always fulfill your promise to customers with Penn automatic controls. On any type of heating and cooling system, once Penn controls are installed properly, their dependability and accuracy deliver the *better comfort you sell!* It's the kind of carefree performance that creates better-satisfied customers, more sales and more profit for you.

For convincing proof, specify and install Penn heating and cooling controls on your next job. A few models are shown on this page... there are many more from which you can select a type to exactly fit your needs. Ask your equipment manufacturer, or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES



Actual Photo of Econo-Pak and Budget-Blower Assemblies in Our Dayton, Ohio, Warehouse.

SERVING YOU FROM A "FULL WAGON"

Prompt Delivery From Full Stock Saves You Time and Money



Your need for rigid inventory control, geared to production, is helped immensely by Lau Econo-Pak.

Our big warehouse stock permits you to order blower assemblies *as you need them*... in the quantities you want, for the production that you estimate.

Specify Econo-Pak and release your inventory investment to work for you in some other part of your business. Save your warehouse space, reduce your inventory costs, make available your supplies for quick delivery to your customers.

Versatile Econo-Pak provides all standard features of famous Lau Series "A" assemblies in a unit adaptable to many needs. *Now* Econo-Pak

is also packaged in a pallet of 24, with bulk packaging of hardware, to give you new economy and simplicity of assembly. *Since Econo-Pak enjoys a rapid turnover, Preslok Wheel too, will be incorporated in all units as quickly as dies and tools are ready.*

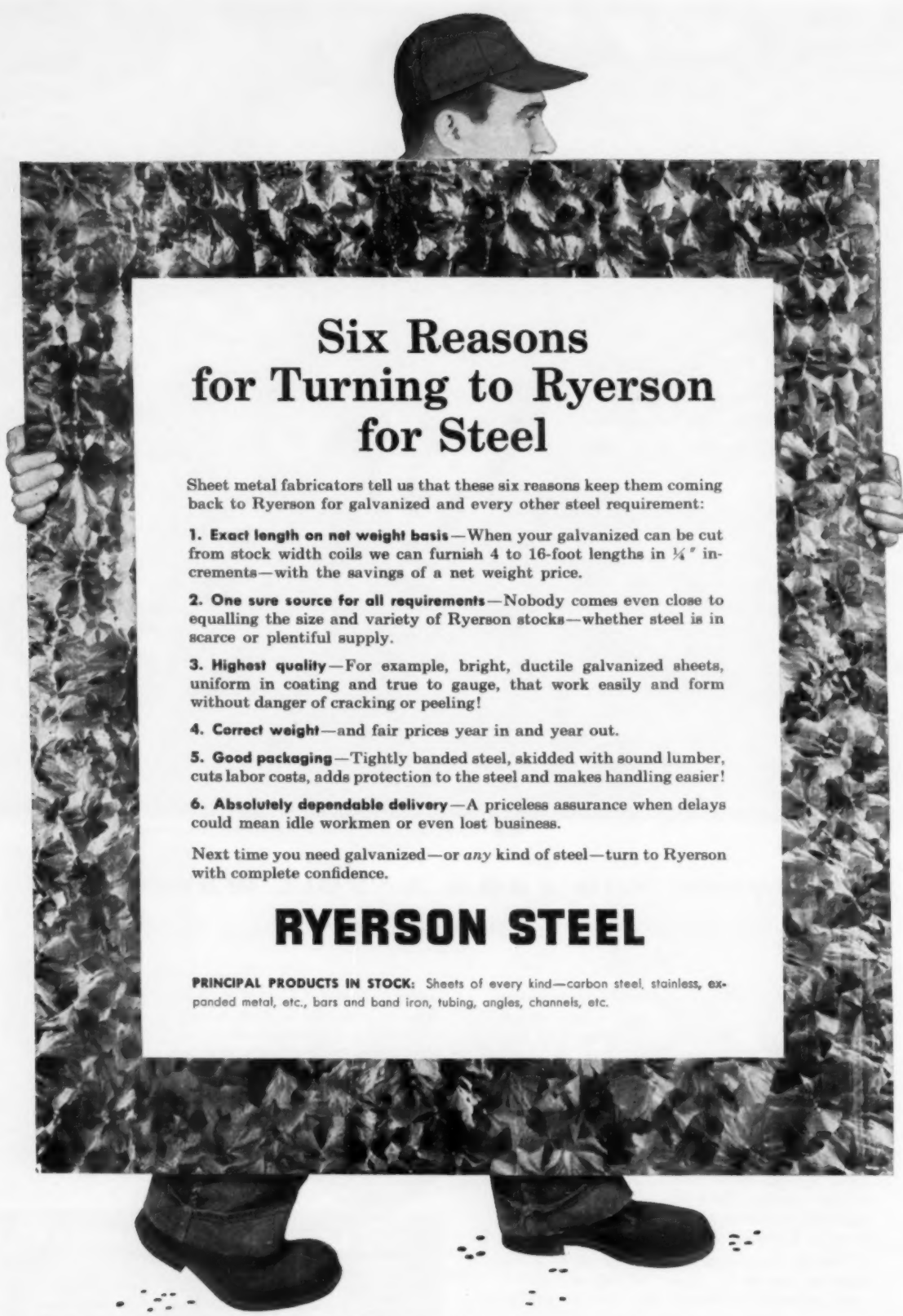
Yes! When you specify Econo-Pak, you see, you receive so many benefits... you save in so many ways. Why don't you have the Lau representative give you *all* the details on Econo-Pak.

World's Largest Manufacturer of Air-Conditioning Blowers

THE LAU BLOWER COMPANY 2027 Home Avenue, Dayton 7, Ohio



Azusa, California. In Canada: The Lau Blower Company of Canada, Ltd., Kitchener, Ontario

A man wearing a dark cap and boots is holding a large sheet of corrugated metal. The sheet is the central focus of the advertisement, with text and graphics overlaid on it. The man's head is visible at the top, and his boots are at the bottom. The sheet itself has a repeating pattern of the word 'RYERSON' and 'STEEL' in a stylized font.

Six Reasons for Turning to Ryerson for Steel

Sheet metal fabricators tell us that these six reasons keep them coming back to Ryerson for galvanized and every other steel requirement:

1. **Exact length on net weight basis**—When your galvanized can be cut from stock width coils we can furnish 4 to 16-foot lengths in $\frac{1}{4}$ " increments—with the savings of a net weight price.
2. **One sure source for all requirements**—Nobody comes even close to equalling the size and variety of Ryerson stocks—whether steel is in scarce or plentiful supply.
3. **Highest quality**—For example, bright, ductile galvanized sheets, uniform in coating and true to gauge, that work easily and form without danger of cracking or peeling!
4. **Correct weight**—and fair prices year in and year out.
5. **Good packaging**—Tightly banded steel, skidded with sound lumber, cuts labor costs, adds protection to the steel and makes handling easier!
6. **Absolutely dependable delivery**—A priceless assurance when delays could mean idle workmen or even lost business.

Next time you need galvanized—or any kind of steel—turn to Ryerson with complete confidence.

RYERSON STEEL

PRINCIPAL PRODUCTS IN STOCK: Sheets of every kind—carbon steel, stainless, expanded metal, etc., bars and band iron, tubing, angles, channels, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI
CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



Heating-Cooling Standards—'Automatic' Sales Tool

THE IMPORTANCE of the air distribution system used in residences is becoming more evident each year. We recently heard a national authority tell warm air heating-cooling dealers assembled for their annual convention that the home owner of the future will be able to dial not only the kind of weather he wants but the kind of environment. Thus, the speaker said, if a home owner wanted to duplicate the "refreshing atmosphere of the seashore or the exhilarating air of the mountains," all he would have to do is set his control dial for that environment.

This brings the "air handling craftsman" into the picture more sharply than ever. And who has the know-how for selecting and installing the equipment to handle the required air volumes adequately? The warm air heating-cooling dealer, of course! But before the home owner will consider making an investment in environmental control systems as elaborate as those proposed, he undoubtedly is going to demand some means whereby he can measure the performance of his system. This is where industry standards of system performance come into the picture.

Development of industry performance standards for present-day heating systems is well underway. Such standards were proposed by S. Konzo, University of Illinois, over two years ago, and presented in exclusive articles in *American Artisan*. These standards make it possible to classify the performance of a heating system in 12 different categories. The quality of the equipment and the engineering proficiency of each category is rated A, B, C or D, depending on the performance of the installed equipment. The National Warm Air Heating and Air Conditioning Association is working on a modified version of the performance standards that can be used by home owners to check their air distribution systems.

Performance standards become an excellent sales tool to help dealers overcome the menace of price cutting because it is impossible to install an air distribution system with a high rating if essential components and engineering specifications are omitted. A dealer using the standards as a sales tool can point out why his installation is worth the additional costs involved. This same sales approach can be used to cover the added profit that enables a dealer to stay in business and earn fair compensation for his services.

According to a survey conducted by Kenneth Keys, president of the National Association of Real Estate Boards, there is a steady increase in the demand by prospective home buyers for higher housing standards. This demand certainly applies to the heating-cooling system as well. As home buyers grow increasingly "better home conscious" they become accustomed to using some sort of measuring device for determining the adequacy of the house they intend to purchase. Thus, the use of a set of standards for heating-cooling systems fits into the sales picture almost automatically — and the dealer who gains a reputation for using the standards of system performance will enjoy the benefits of having his work automatically associated with good installation practices.



He Sells Cooling by Talking The Housewife's Language

To sell cooling to the lady of the house, dealer says,
talk comfort not compressors, relaxation not refrigerants

"To SELL COOLING you have to know how to sell the lady of the house. You can make a good sales presentation on summer air conditioning that a man will listen to, but it will only bore the housewife. The women don't want to hear about compressors and cooling coils, they want to know how your equipment will make their homes prettier and make their lives more pleasant."

These remarks were made by William E. Garber, Jr., Farquar-Garber Heating Co., Indianapolis. Mr. Garber feels that summer air conditioning is in the same position as automatic heating a few years back. "Not too long ago," he points out, "many people said that automatic heating was too expensive, that they'd stick to their hand fired methods. But now that they have automatic heating, they wouldn't dream of giving it up. Automatic heating appealed to the housewife, and that is one important reason why we were able to sell it."

Mr. Garber finds a lot of people today saying that summer air conditioning is too expensive, that they can get along without it. "But they usually don't have the facts. They don't know what the costs actually are, and they haven't been exposed to cooling in a home," he declares. "However, if you can sell the lady of the house, you can usually sell her husband," he adds.

The eventual growth of the cooling market will be a big boon to heating-cooling dealers, Mr. Garber feels. March, April, and early May have been his slow months in the past. During this period the service season is over and the new heating installation season is not yet at hand. But cooling sales are starting to fill in this gap.

Biggest Market in Older Homes

The biggest market for summer air conditioning, Mr. Garber finds, is in older homes. The speculative builder is trying to keep his price as low as possible, and he finds he doesn't need to install summer air conditioning because public demand for it still isn't at a high level. The man who is buying a new house has many other expenses

to worry about and needs to be made aware of benefits of a cooling system. "The man you sold a furnace to three or five years ago is your best prospect," he says.

Mr. Garber's business is principally in the modernization market. "The new house business is extremely competitive," he says.

A large percentage of the company's business comes from previous customers. Mr. Garber has always followed the policy of sparing no pains to make his customers satisfied. "You have to treat the customers you've got with kid gloves. It's a lot cheaper to keep a present customer than to get a new one," he says.

Installations Carefully Engineered

To keep customers happy, each installation is carefully engineered. The company prepares both a heat loss (or gain) calculation and a detailed layout on all jobs. "About half the time," he says, "an estimator may be able to judge the proper size and figure the cost just by looking around. But why take the risk on making an error? You can learn a lot about what a customer wants and expects when you talk to him while measuring the rooms. And when you make a complete plan, you can talk convincingly to him and do a much better selling job," he adds.

After an installation is made, every effort is made to keep the customers satisfied by providing good service. To provide reliable night service a telephone answering service is used. Service men take turns at being on night call duty. The telephone answering service always knows where they can be reached, whether they are out on a call or visiting a neighbor. If the service man is tied up on a call when a second call comes in, an emergency man is on duty and can be sent out. The answering service also provides a list of all calls received.

Mr. Garber feels that a common mistake in handling a complaint is to argue with a customer over what he claims the difficulty is. "Agree with him," he advises,



In addition to the gift plan mailing, the company makes several other mailings during the year to past customers. Around March 1 a letter is sent offering to make an estimate on a cooling system. A letter mailed in May or June offers cleaning and repair service. A special letter to users of hand-fired equipment suggests conversion to automatic equipment.

Uses Neighborhood Paper

Mr. Garber has scheduled a series of advertisements in a neighborhood newspaper which covers the area where he does most of his business. Although he has run ads in the larger papers from time to time, he feels that they do not give the type of local coverage that he wants. The company has also participated in the Indianapolis Home Show and has used displays at the county fair which is held in an adjacent suburban community.



BLUEPRINTS are carefully studied by William Garber before drawing the duct layout, which is a must on every job



SERVICE CALLS are answered promptly day and night with every effort made to assure customer satisfaction



MONTHLY STATEMENT, prepared by bookkeeper Joyce Farthing, is a constant gage for maintaining a healthy profit level

"even though you think he is wrong. Then, figure out what you can do to overcome the complaint."

On a complaint call, Mr. Garber bends over backwards to hold the bill down. If he has to absorb some of the cost, he feels it will pay off in good customer relations. A satisfied customer may become a customer again and often will encourage his friends to become customers.

Gift Plan Provides Leads

To stimulate business from friends of customers, Mr. Garber uses a gift plan. Several times a year he mails a brochure to his recent customers asking them to send in the names of people who may be interested in buying a summer or winter air conditioner or a conversion unit. If a sale is made, the customer suggesting the name may select a gift from one of those pictured in the brochure. One woman has been responsible for three sales under the gift plan. Mr. Garber has found that the plan works best with recent customers — those from the past two years.

An important key to business success, Mr. Garber says, is a proper and well handled set of books. "Too many dealers don't know what their expenses are and where their profits are coming from," he declares. "But how else can you tell what to charge for a job or what jobs to avoid?"

The company has had good success with its handling of collections. "The sooner you can send the bill, the better the chance you have for collecting it," Mr. Garber says. He also feels it is important to have a written contract which explains how the account is to be paid. In 1956 his bad debts came to \$6. The year before they were \$66.93 and \$25 of this amount was later made good.

Mr. Garber stresses the importance of courtesy on the job. "I've seen quite a few sales go down the drain because of some minor incident. That is why I try to instill politeness and consideration in my employees," he says. "It makes a bad impression when men fail to clean up around the house after working or when they are careless about such things as dirty feet on clean carpets."



THIS IS THE FIRST
... IN A SERIES of reports on tests by the
NWAHACA Mobile Laboratory which seek to
expose and solve some of the problems
cooling dealers will encounter in installing
summer air conditioning systems in struc-
turally complex multi-level homes

Split-Level Cooling Test Spotlights Duct Heat Gain



... as one of the problems inherent
in providing summer comfort for typical multi-level
homes. Here's what the mobile lab found in a
tri-level home with a remote air cooled system

COOLING OF SPLIT-LEVEL houses offers numerous opportunities for the system designer to overlook pertinent requirements in order to overcome what appear to be natural tendencies of heating and cooling systems to conflict as far as providing comfort conditions on an equal basis the year around. Field investigations by the National Warm Air Heating And Air Conditioning Association's Mobile Laboratory show that areas in split-level houses that are easy to heat are difficult to cool and conversely, areas that are difficult to heat are easy to cool.

Problems Assigned to Two Factors

The air distribution problems uncovered during the 1955 cooling season by the National Warm Air Heating And Air Conditioning Association's Field Investigation Committee are probably due to two factors. These are:

1) The cool air leaving the evaporator coil is carried through ducts located in spaces which are at higher temperatures than is the air within the ducts. Some of these ducts are in occupied areas and any loss of cooling ca-

capacity reflected by the temperature gain of the air passing through these ducts does represent useful cooling. Other sections of the duct system are in areas that are not occupied, such as those in the basement between the wall studs, and the amount of useful cooling from these ducts is questionable. All these ducts are uninsulated in favor of heating performance.

Heat gain to the ducts results in a temperature increase of the circulating air within the ducts and consequently the air leaves the supply air registers in the upper level rooms at a higher temperature than it does in those rooms closer to the cooling unit. Such a temperature gain will be reflected in a larger air flow rate requirement than would be the case if no heat gain occurred. When it is realized that the normal temperature differential of the air across the cooling coil in these jobs was only about 12 to 18 deg, even a small temperature gain of 3 deg can account for a reduction in cooling ability of about 20 to 25 percent.

2) Cool air introduced into a room should be thoroughly mixed with the warmer room air to produce the

BACKGROUND OF THESE REPORTS

A SERIES OF FIVE articles on heating split-level houses was published in the June through October, 1956 issues of *American Artisan*. The articles were summarized from data obtained by the National Warm Air Heating and Air Conditioning Association's Mobile Laboratory and evaluated by members of the association's field committee. This new series of four articles on cooling split-level homes presents information from the same sources.

The results of the heating investigations indicate that the lowest level of the house is the hardest to heat and is thus the coolest part of the building during the heating season. On the other hand, the upper level is the easiest to provide with winter comfort. An analysis of the data secured by the Mobile Laboratory during the summer of 1955 shows that the most difficult level to heat is the easier to condition during the summer and that the easiest area to pro-

vide with winter comfort is the most difficult to condition in summer.

The problems uncovered by the Field Investigation Committee are by no means unsolvable, and would in several cases have never existed had the designers of the systems used the information available in the association's manuals. It should be obvious that care must be taken in the design and installation of year 'round air conditioning systems in split-level houses.

desired indoor temperatures. If the mixing is not complete, the cool air stratifies and settles near the floor. Then in the normal course of events, since there is no dam to restrain the free movement of air, the cool air tends to settle to lower elevations by sliding down stairs and drifting through openings between the levels of the house. This in turn will bring warmer air from the rooms on the lower levels to those on the upper elevations.

One obvious answer is to insulate the ducts in the lower level, basement and crawl spaces. While this appears to be a solution during the cooling cycle, it would possibly be a disadvantage during the heating cycle.

Test House Has Three Levels

The split-level house described this month is a frame building 44 X 42 ft with three occupancy levels and a basement. These levels are:

Basement (Storage and utility space) not air conditioned	
Lower level (recreation room)	369 sq ft
Middle level (Living, dining rooms; kitchen and hall)	719 sq ft
Upper level (three bedrooms, two bathrooms)	756 sq ft
Total occupied and conditioned area	1844 sq ft

The basement, a few feet below the level of the recreation room, is entered by a stairway from the recreation room. Over the basement level is the middle level, comprised of the living room, dining room and kitchen. The upper level with the bedrooms extends over the recreation room and garage and is entered by a short flight of stairs from a passageway opening to the living room from an ornamental iron railed balcony landing.

Trunk Duct System Is Extensive

The summer-winter air conditioning system has a cooling coil in the supply plenum above the furnace. The

compressor and air cooled condenser are outdoors. The supply outlets are perimeter wall diffusers usually beneath or adjacent to the windows. The trunk duct system is rather extensive and branch ducts to the master bedroom are extremely long. Five return air intakes are located centrally in the house.

The house is located in the eastern seaboard area, where the cooling outdoor design temperature is 95 F dry bulb and 75 F wet bulb. The indoor design temperature is 80 F DB. The heating design temperature is zero F. The daily range of temperatures during the cooling season is considered low.

The building has walls of standard frame construction with a shingle siding exterior except for a small brick veneer portion in the front. Dry wall construction is used inside with 2 in. glass fiber blanket insulation between studs. The upper and middle level ceilings contain 4 in. of rock wool batt insulation.

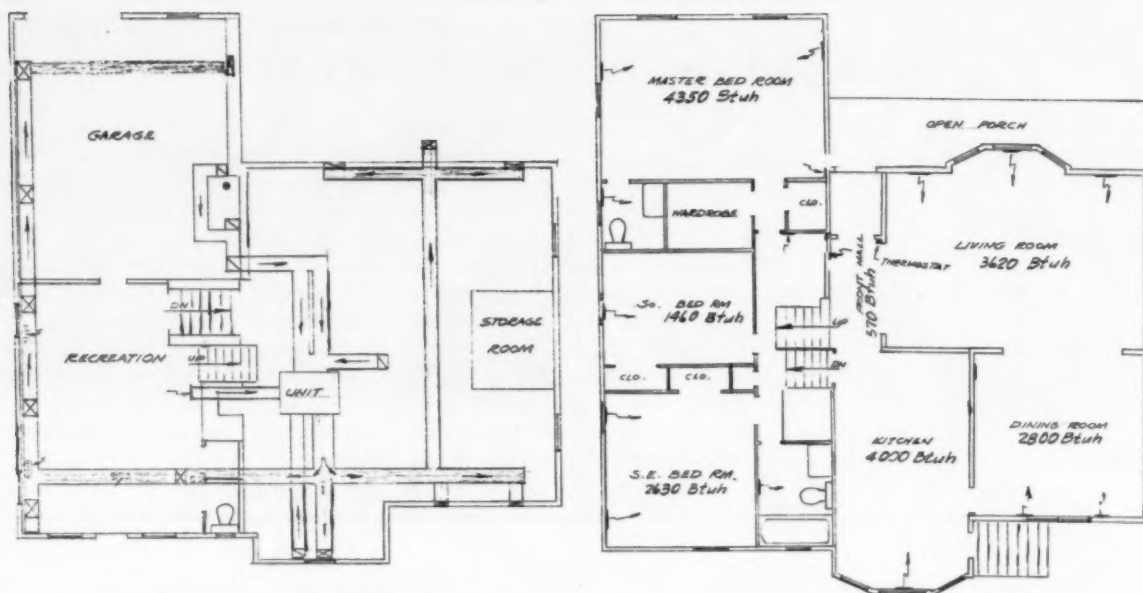
House Is Ventilated, Shaded

The roof is of green asphalt shingles over wood sheathing. The roof above the living room level has a gable end. A hip roof is used over the bedroom. Two small ventilators are provided near the peak of the hip roof. A rectangular opening is near the ridge in the gable end.

Several trees shade portions of the walls but not the roof. The open porch over the west end of the building provides a large roof overhang for the west windows of the living room.

The recreation room and garage floors, which are essentially at grade level, are concrete slabs without edge insulation. The ceiling above the garage, which is under the master bedroom and a bathroom, is plaster on rock lath insulated by 4 in. thick mineral wool above the lath.

Most of the windows are double hung wood sash. No storm sash has been provided but all windows and doors are weatherstripped.



TRI-LEVEL HOUSE has typical arrangement of rooms with bedrooms and baths located over recreation room and garage; living room, dining room and kitchen over basement. Duct system, shown in floor plan of lower level at left, is complex with long runs to bedrooms

The ground at the rear of the house is almost level but slopes away from the front of the house at enough grade that drainage should be good.

Framing Is Typical

The structural framing of this house is typical of most split-level houses. It is impossible to run a concealed duct from one end of the house to the other without offsets, turns, and changes in elevation.

The house was one and a half years old at the time of the investigation. The total cost of the complete heating and cooling system installed was estimated to be approximately \$2500, including cooling unit, furnace, oil tank, controls, etc.

Use Oil-Fired Furnace, Remote Cooling System

The forced warm air furnace is oil-fired with an output rating at the bonnet of 110,000 Btuh. It has an 18 in. wheel centrifugal blower driven by a 1/3 hp motor. The same blower is used for both the heating and cooling cycles.

The cooling coil is in the plenum above the furnace heat exchanger, and is inclined 30 deg from horizontal. It has a face area of approximately 400 sq in., and is three rows deep.

The remote compressor-condenser assembly is under the wooden outdoor stairs leading to the kitchen. The unit is rated at 23¼ tons of refrigeration. The condenser is air cooled. Fluorinated hydrocarbon refrigerant no. 22 is used.

Separate thermostats on a common mounting plate control the heating and cooling system. The mounting plate contains changeover and operating control switches. One switch has "Auto." and "On" positions for the fan. The other control has positions indicated as: "Heat, Cool, Off, Dehumid." The compressor is equipped with the necessary starting equipment, overload protection, and pressure controls. The compressor pressure controls are set as follows:

Low pressure cut-in	60 psi
High pressure cut-out	350 psi

The duct system in the basement and on the ceiling of the recreation room is understandably complex and elaborate because of the type of structure framing employed by the builder. The exposed portion of the duct system in the garage is covered with insulation and a vapor barrier. The remainder is not insulated, and even though the basement was not considered an air conditioned area, no condensate or corrosion was noticed on the ducts themselves. However, heavy condensation was noted on the lower part of the supply plenum up to about 2 ft above the top of the cooling coil.

An outdoor air intake duct extends from the return air side of the unit to the east side of the house and terminates in an uncovered 12 × 5½ in. opening beneath the kitchen bay.

Same Registers Supply Warm, Cool Air

The same supply air registers are used for heating and cooling. These low side wall perimeter type diffusers on the upper and middle levels are beneath or immedi-

ately adjacent to the windows in most cases. Ceiling diffusers are used in the recreation room ceiling.

All return air registers are on inside walls near the floor: one in the recreation room on the lower level, two in the middle level and two in the upper level.

A three speed, 10 in. diameter kitchen ventilating fan in the kitchen wall over the range is rated at 345, 405 and 518 cfm.

Heat gain calculations were made by the method prescribed in NWAHACA Manual 11. The total heat gain is approximately 2.1 tons, distributed on the three levels as follows:

Lower level ... 4480 Btuh ... 17.9 percent of total
Middle level .. 10990 Btuh ... 44.0 percent of total
Upper level ... 9530 Btuh ... 38.1 percent of total
Total 25000 Btuh

The calculated design heat loss for the structure is 60,000 Btuh, based on an outdoor design temperature of zero F. The ratio of heat loss to heat gain for the entire structure is 2.4.

Test Conditions Satisfactory

The five day test was made between August 1 and 5. Outdoor temperatures varied from 98 F to 75 F on the hottest day, and from 84 F to 70 F on the coolest day. The weather, for the most part, was sunny. No rain fell during the test period.

No adjustments were made by the mobile laboratory technician either before or during the test period.

In keeping with a characteristic noted in other split-level houses, the coolest rooms were on the lower level and the warmest on the upper level (see Table 1).

Note in Table 1 that the upper level was 3 deg warmer than the middle level, which in turn was 3 deg warmer than the lower level. The coolness of the lower level rooms was not due to excessive air delivery through the supply air registers at that level, since most of the registers were dampered and only a small percentage of the total air was being delivered directly to these rooms. It appears that gravity action from the upper levels of the house was responsible for the coolness and uniformity of lower level room air temperatures.

The estimated air flow rates, as measured on the supply and return air sides, are in good agreement. A value of 1080 cfm is regarded as a reasonable estimate of the total air flow rate. This corresponds to 393 cfm per ton of rated capacity.

Table 2 tabulates the total air supply to each of the three levels, as well as the calculated heat gains and the temperatures that were maintained.

TABLE 1—TYPICAL SPLIT LEVEL conditions show coolest rooms on lower level, warmest rooms on upper level

	Lower Level	Middle Level	Upper Level
Average temperature — 60 in. level	70.5 F	73.3 F	76.6 F
Temperature differential — ceiling to floor ..	0.9 F	7.1 F	8.1 F
Temperature differential — 60 in. level to floor	0.6 F	5.3 F	5.8 F
Cfm air supply	32	564	484

TABLE 2—MIDDLE LEVEL receives most air flow, experiences most heat gain and provides most return air, to reflect desirable room air temperatures

	Lower Level	Middle Level	Upper Level
Percent of total heat gain	17.9	44.0	38.1
Percent of total air flow	3.1	52.2	44.7
Average supply air temperature	54.9	58.2	56.7
Average 60 in. level room air temperature	70.5	73.3	76.6
Percent of return air taken through grilles at each level (outdoor air equals 6.1 percent)	4.5	75.6	13.3

Two long runs to registers located on the far sides of the living room and master bedroom showed the largest amount of temperature pickup (4 to 5 deg). This is a large proportion of a total temperature differential of only about 15 deg between the temperature of the air leaving the cooling coil and the inside design temperature.

The front hall return intake handled almost half the entire return air volume.

The house is occupied by a middle aged couple with one child less than six years old and another child over 12 years old. All were in good health except the housewife, who complained of a dust allergy. Their reactions to the system are as follows:

Occupants Are Satisfied

1) They are convinced air conditioning improved her allergy condition since the house can be kept closed. The filters and wet coil remove much of the airborne dust.

2) When asked why they have summer air conditioning, they replied, "You would not think of living in a house in the winter without heat, would you?"

3) They like the even temperatures maintained.

4) They are generally well satisfied but think the master bedroom is too warm on hot days.

5) They feel the results are worth the initial investment and operating expense involved.

6) The preferred thermostat setting is 75 F.

7) There is no evidence of thermal shock when going in or out of the house.

8) The system is allowed to operate 24 hours a day under the control of the thermostat and the windows remain closed throughout the cooling season.

9) Cooking is extensive during the summer, and the kitchen ventilating fan usually operates while meals are cooked.

10) Shower baths are taken daily.

11) The automatic dishwasher is operated daily and the washing machine and clothes dryer two or three times a week. Other appliances, such as television, are operated about six hours daily. Lingerie is washed and dried indoors daily.

12) They have evening house parties and guests occasionally with no complaint of inadequate cooling.

13) No annoyance from drafts was reported.

Further reports on the investigations of cooling problems in multi-level homes by the NWAHACA mobile laboratory and field committee will be presented in subsequent issues of American Artisan.



COOLING DEALERS' HANDBOOK

How to Solve Engineering
and Installation Problems
in Residential Cooling

Make Cooling Service Calls Pay Off

Is your service department performing its primary function of preserving your reputation by keeping all your installations in best possible operating condition? Here are some suggestions to help servicemen spot troubles before the customer can be inconvenienced by them

By S. W. Reid

**Air Conditioning Engineer
Gilbert Associates, Inc.**

THIS IS THE TIME of year when air conditioning dealers are scheduling service calls for the seasonal startup of cooling systems. The scope of such activity will range from removal of window unit weather covers to complete check and adjustment of large central systems. From now until shutdown time the service department will be busy just "keeping 'em running."

A dealer's reputation depends perhaps more on his service department than on any other phase of his organization. A cooling system can be sold by an expert salesman, designed by an experienced engineer, constructed of the finest equipment and materials, but if it does not function properly, it has failed.

It is the job of the service depart-

ment to make sure that systems under its care function properly and efficiently. To render this service, the department itself must be run efficiently. There are many case histories to prove that a dealer can neither charge fair rates for service work inefficiently performed without incurring a financial loss, nor charge unfair rates without suffering a loss of customers. A dealer who offers air conditioning service on a large scale around the clock is courting financial disaster unless he exercises adequate control over both stock and mechanics' time.

Here's Tested Service Plan

The discussion which follows is a report on the plan one dealer is using

with considerable success in maintaining an efficient and profitable service organization. The keystone is pre-planning as much service activity as possible.

Efficient handling of the spare parts inventory is aided by the use of two forms. The first is a permanent file record, made out for each job, of all parts that might require replacing to keep the system in operation.

This card is filled in by the crew which starts up each new system. On it are recorded such items as the following:

- 1) Owner's name, address and phone number.
- 2) Make, model number and serial number of each major piece of equipment.



SERVICEMAN PERFORMS a thorough check of all equipment before cooling season startup



CHECK FOR LEAKS is final point on serviceman's check list before reporting to owner

3) Make, horsepower, speed and current characteristics of each motor.

4) Make and identifying number of motor starter overload heaters.

5) Pitch diameter of all pulleys.

6) Make, number and size of all belts.

7) Size, type and number of all filters.

8) Name of mechanic in charge of installation.

9) Date of initial operation.

When the stock man receives a new card after each installation, he checks to make sure he can supply such frequently needed items as belts, expansion valves, filters, etc., directly from stock. If necessary, orders are placed for these and other spare parts he feels should be on hand to cover emergencies.

Make Two Service Reports

The second form the stock man receives is a copy of each service call report. The mechanic makes this report out in duplicate at the completion of every call. On it he lists all parts and materials supplied plus an itemization of time spent both on the job and in travel and a notation of the travel mileage. The owner signs both copies and retains the original. The duplicate is given to the service

manager who checks it against his dispatch sheet and turns it over to the stock man to take off inventory changes and note them on a master record. Parts and materials withdrawn from stock are replaced according to a definite program to assure that there is always at least a minimum supply on hand.

This dealer is equally as proud of the service procedures he has developed for his men as he is in being able to furnish customers with replacements on short notice. Experience has taught him that an established routine not only helps servicemen uncover trouble sources more quickly, but also makes for more thorough work which minimizes call-backs. The overall results are satisfaction to the customer and profit to the business.

Record Posted on Job

An interesting feature of the operation is the service record card which is posted right on the job with the equipment whenever possible. On this card appears not only a prominent display of the dealer's name, address and phone number, but also a large ruled area on the face and the rear where the serviceman can enter the date of a call, the major service rendered or correction made, and his

initials. The card gives the home owner a permanent, chronological history of his installation, plus saving time for new servicemen as it enables them to review quickly what work has been done on preceding calls. Dates are handy for ready reference where guarantees are concerned or where trouble repeats itself in abnormally short intervals. The initials of previous servicemen show a new man who to contact for more detailed information about earlier work. A duplicate of the service record card is not kept in the office since the story of each call is completely described on the service report which is permanently filed by the office clerk.

Dealer Finds "Bugs" First

Let us consider several of the pre-planned services which this dealer is prepared to provide. First of all, he is very firm in his belief that every new air conditioning installation should be tested thoroughly, honestly and in accordance with a definite program. He wants to find out for himself whether the furnace performs as intended and whether automatic controls will switch the system from heating to cooling. He wants to know how noisy the system is and whether or not air quantities and tempera-

tures are balanced as planned. He looks for drafts; he checks refrigerant pressures; he checks voltages and motor amperages. He wants to know that joints are tight, screws are set, insulation is properly applied. It is his policy to try to find everything that is wrong before his customer finds it. What may be one little, easily-corrected fault in the mind of a dealer becomes a serious strike against the job in the mind of an owner. A couple of very minor malfunctions, when discovered by an owner, somehow cause him to believe that nothing about the system is right. More than two faults, and the owner may demand that the system be torn out. A good dealer knows that there are unavoidable bugs in the best designed air conditioning systems. He feels that the most expensive way to find them is to let the owner do it.

Seek Good Customer Relations

Quite obviously, from what has been said, the man whose story we are telling does not believe in doing things the most expensive way. He views customer good will as a valuable asset which is created in the sales negotiation, nurtured during installation and preserved thereafter by prompt and efficient service. The testing of a new system is but the first step in acquainting the customer with the company's service department. The customer's reaction to this will likely determine whether or not he will call the dealer for future service needs.

Here is a list of steps to take in testing a new system:

- 1) Make an appointment with the owner, explain that the installation work is complete and that as a regular part of the contract a full test and check of the system will be made.
- 2) Inspect the entire system for general appearance, workmanship and compliance with drawings, specifications or written contractual agreement with the owner. Note necessary corrections.
- 3) Apply the proper lubricant to all equipment as required.

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE defines air conditioning as follows:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

4) Check for proper rotation and belt tension of all belted equipment.

5) Measure total air quantity handled by the fan when all dampers are wide open. Adjust fan speed to obtain proper total cfm; adjust return and outside air dampers to obtain proper ratio.

6) Measure and record the cfm at each supply and return opening. Calculate the percentage by which measured cfm varies from the design figure. When all measurements are completed, correct cfm of air at each point with damper adjustments until cfm is within 10 percent of desired level.

7) Lock hand dampers in the proper position and mark setting. Adjust motorized damper linkages as required.

8) Operate both heating and cooling equipment. If air quantities differ for each, balance both ways and mark seasonal damper settings.

9) Check the calibration and observe the cycle of all temperature and pressure controls.

10) Check the electrical system for correct fuses, overload protectors, motor voltages and amperages, operation of interlocks, etc.

11) Check entire system for noise and vibration.

12) Check the conditioned space for temperature uniformity and drafts.

13) Check ducts for air leakage and abnormal heat gains.

14) Check refrigerant system pressures and look for leaks.

15) Review test with customer. Tell him frankly what corrections remain to be made and when the work will be done. Make sure customer understands how to operate the system and what to expect of it.

The test of a new air conditioning system not only helps assure customer good will by eliminating careless omissions and oversights in the installation and adjustment work, but also provides for the dealer a first hand opportunity to study the results of his design so he may learn a better way to do the next job.

After an air conditioning system has been turned over to an owner upon his agreement of satisfaction, it is to the dealer's advantage to encourage the customer to sign a contract for regular maintenance. The dealer can explain that contractual service is less costly than call-when-needed service because: 1) it permits trouble to be corrected before it becomes serious, and 2) it permits the dealer to schedule service calls to take full advantage of his mechanics' time.

List Assures Thorough Check

There are various financial bases upon which contractual service may be offered. The real meat of it, however, is in the check list method used by the serviceman each time he makes a call. The method assures thoroughness in the same manner as the one used by modern service stations in checking critical items in an automobile.

When a maintenance contract is drawn, the job is immediately entered on the service call schedule so the installation will be visited once a month during the cooling season. Each man who makes a call is required to turn in to the service manager a form which provides space for entering the customer's name, type of job, the date, a check mark for each item inspected, any special remarks and his own signature.

To give some order to the checking procedure, this dealer has divided the job into the following eight

major categories which he feels cover any type of cooling system and equipment:

Compressor

Evaporative Condenser or Cooling Tower

Water Cooled Condenser

Air Cooled Condenser

Air Unit

Controls

Well Water

General

Under each of these headings is a detailed list of items that must be inspected. As each item is checked, a mark is placed in the space provided. If it requires service or if it does not apply to a particular job, an applicable notation is made.

Each dealer can use his own resourcefulness to compose a check sheet to fit his own operation. For the one we are reporting, the customer is assured of the following:

Check List Is Complete

Under the compressor category, motor bearings are lubricated and the compressor oil level is checked and the amount of oil added is noted. Suction, discharge and oil pressures are recorded as found. Adjustments made to correct abnormal pressures are noted, together with final pressure readings. The system is then pumped down, either by closing a liquid valve or stopping the evaporator fan, to determine whether or not the low pressure cutout functions properly. The high pressure cutout point is also checked by stopping the flow of condenser cooling medium. On open type compressors, head bolts are tightened. Next, the system is checked for refrigerant leaks, and then, either by sight glass or by temperature and pressure measurements, the serviceman checks for proper refrigerant charge. The amount of refrigerant added is noted. If necessary, compressors are checked for proper rotation, and finally, belt drives are inspected for wear, tension and alignment.

In the evaporative condenser-cooling tower category, the monthly inspection calls for motor, fan and pump bearing lubrication. Scale and

dirt deposits on coils are removed as necessary. Spray nozzles, makeup water strainers and air intake screens are cleaned. Water float valves are checked for tight shutoff at the proper level. Any water leaks are corrected. Fan drives are checked for wear, tension and alignment. Fan rotation is checked. Rust spots are located and treated. Water treating chemicals are supplied as required. The water bleedoff rate is checked and adjusted.

Extra Charges Discussed

Water cooled condensers are cleaned when discharge pressure readings indicate such is necessary. This, however, is not a normal monthly procedure and is done only

with the owner's agreement to the extra charge. Water regulating valves are adjusted for the desired leaving water temperature and checked for tight shutoff when the compressor stops.

Where air cooled condensers are used, fans and drives are checked and the coil is cleaned if necessary. Bearings are lubricated.

Monthly inspection of the air unit includes motor and fan bearing lubrication. Rotation is checked and drives are inspected for wear, tension and alignment. Filters are cleaned or replaced as the case may be. The cooling coil is checked while under refrigeration for any sign that it is not receiving proper amounts of refrigerant. The refrigerant liquid strainer is checked for evidence of clogging. The drip pan is cleaned, and the condensate drain line is cleaned. Rust spots are treated.

Control inspection includes an operating test of all thermostats, damper motors, relays and other automatic electrical devices. These components are cleaned and adjusted as necessary. Damper settings are checked against original markings. Loose quadrants are tightened.

Customer Relations Cemented

In the general category on his sheet, the serviceman is reminded to instruct the owner in any procedure that he should follow to obtain maximum utility and comfort from the conditioning system. If the system is in a small commercial establishment, the owner is asked if he needs new door or window decals for advertising air conditioning. The check list reminds the serviceman to clean up all debris and wipe off any dirt he has left. A final check mark is entered when the customer signs the service call report indicating that the work is satisfactory.

When he has checked each item, the serviceman is convinced he has left the installation in the best possible operating condition, and the dealer can rest assured that any trouble which develops will not be the type which might endanger his fine relationship with the customer.

THIS CONTINUING SERIES OF ARTICLES COVERS . . .

. . . all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

FUNDAMENTALS . . .

. . . in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

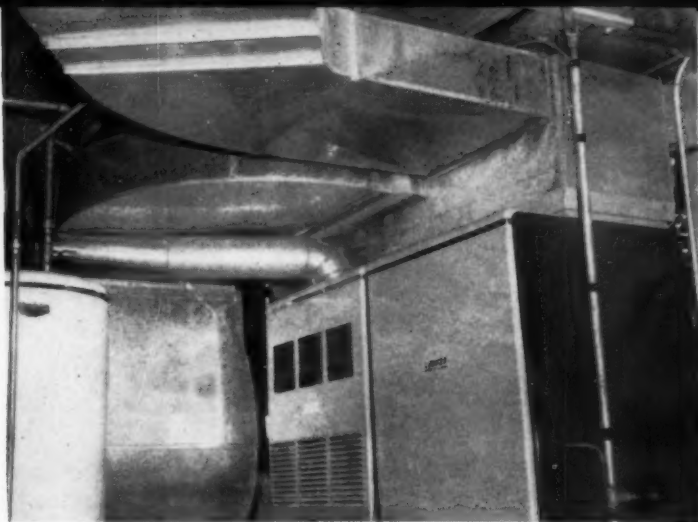
SPECIFIC PROBLEMS . . .

. . . of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

CASE HISTORIES . . .

. . . and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.

Cooling dealer breaks into fashionable home market by proving to prospects that . . .



MULTI-LEVEL RESIDENCE presents air distribution problems for heating and cooling equipment. Small amount of space was available for smoke pipe, return and supply duct work

Two Stage Cooling Handles Variable Load Demands In Multi-Level Homes

By Herb Foss
Lennox Industries, Inc.

MULTI-LEVEL houses usually present heating-cooling dealers with many more problems than are encountered when installing systems in ranch style houses, and when multi-level houses are built on a spacious scale to provide for extensive entertaining, the problems are multiplied. The dealer must select cooling equipment that will not only provide maximum comfort conditions when the home is occupied by only a few members of the family during moderately warm days but also has the versatility to handle maximum heat loads created by large numbers of guests being entertained during periods of maximum outside air temperatures. To solve such problems, Earl Bohat, Conditioned Air Systems, Skokie, Ill. prescribes a two stage summer air conditioning system.

Extra Cost Is Justified

In selling this type of equipment to a prospect, it is necessary to point out that equipment normally used in residential applications isn't originally designed to be as flexible as a two stage unit. Mr. Bohat eases into discussion of the additional cost of the specially designed system by telling the prospect, "While two stage cooling equipment is more expensive than single stage, it does bring definite benefits that more than justify the extra cost. Two stage cooling systems are for discriminating



people who expect and demand the finest."

Then he points out the features of two stage operation. He explains the importance of maintaining the proper indoor temperature and humidity conditions, and he describes how the equipment operates to achieve these conditions under varying outside weather conditions. The prospect is told, "In residential air conditioning it is usually best to operate the blower constantly during the cooling season to prevent the indoor air from becoming stagnant and stale.

Two Stage System Prevents Re-Evaporation

"While the refrigeration unit is running, the multiple fins on the evaporator are saturated with water that condenses out of the air. Whenever the compressor stops, this dehumidification process stops. If the blower continues to run, the moisture re-evaporates from the cooling coil fins and re-enters the living area. The result is a noticeable increase in humidity. This condition is a disadvantage of single-stage refrigeration units used in large homes with varying loads, and rarely occurs with a two stage system.

"With a two stage cooling unit, the first stage runs almost continuously when there is a need for cooling the air, maintaining the desired temperature and humidity conditions in the house. The second stage operates only



FINAL ADJUSTMENT of two stage equipment is made according to specification manual. Second stage is adjusted to respond automatically to increase or decrease in load conditions



FUNCTIONS OF two stage cooling equipment are explained to customer by dealer Earl Bohat and author Herb Foss



AIR DISTRIBUTION for winter and summer is assigned to individual blowers which are adjusted to provide ample air volume to meet specific requirements of the building

when peak loads affect interior air temperatures and humidity.

"With the first stage of the cooling unit in operation most of the time, the frequency of starts and stops normally encountered under such conditions with single stage units is kept at a minimum."

Blowers Assigned to Seasons

Another feature explained to the prospect is the two blower method of delivering air; one for summer operation, the other for winter use. Prospects are told how air volumes vary between heating and cooling requirements and how it is most practical to adjust each blower to handle the air quantities required for its assigned season.

The control system to provide the temperature required during either cold or hot weather is thoroughly explained to the home owner not only before the sales presentation is completed but also after the installation has been balanced and adjusted. This type of system is controlled by a combination heating-cooling thermostat.

Step-Starting Saves Initial Power Demand

The thermostat makes it possible to turn the entire system off, to turn on only the heating system or to operate the cooling system alone. The cooling side of the thermostat contains contacts for each of the two stage units. They are wired so that even if the cooling thermostat is turned on and the thermostat calls for operation of both units to reduce the heat load, only one refrigeration unit will start at a time. This operation, termed step-starting, is designed to reduce the initial demand on the electrical power supply. Once the first stage unit is operating nor-



EVERY MEMBER of the family is instructed in the operation of the thermostat to provide both heating and cooling by Earl Bohat before he considers the installation complete

mally, the second stage unit will start. With both units operating, the initial heat load can be handled more quickly and comfort conditions can be achieved readily.

All equipment is installed with an eye to quiet operation. To prevent the chafing of metal parts where cabinet sections are joined, Mr. Bohat inserts thin glass fiber strips between the two sections before assembly. He attaches the strips with mastic cement. The joint then becomes air tight, reducing the possibility of air leaks as well as noise sources.

Automatic Dampers Controlled by Pressure

To switch from summer to winter operation, an automatic damper is used. The damper fits across the outlets to the plenum of both the heating and cooling cabinet sections. The automatic dampers are controlled by the air pressure created by the blower. When the heating blower is operating, the air pressure opens the dampers over the heating unit and automatically closes the opening from the cooling unit cabinet. This arrangement serves a dual purpose; it prevents passing conditioned air through an unused compartment and it helps minimize static resistance in each air distribution system.

All installations utilize a flexible duct connection to contain mechanical noises within the cabinet space. To prevent transmission of refrigeration unit operation noises through water lines to house piping, 10 in. rubber hose sections are installed at points where water lines enter and leave the cooling cabinet.

Once Mr. Bohat has explained the advantages of two stage cooling for the larger homes which are typical of the area served by his firm, he finds prospects are usually willing to meet the extra cost in order to be certain of complete comfort under widely varying conditions.



It Takes an Early Start to . . .

Get the Jump on The Cooling Season

You can do it by tying in your promotion with Better Your Living Month in May. This nationwide Operation Home Improvement program is timed just right to help dealers build cooling sales

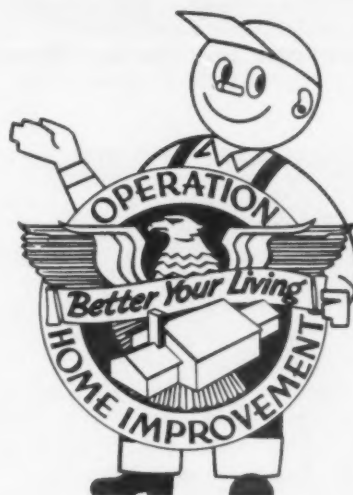
THE MONTH OF MAY is the time when people often start thinking about summer air conditioning for their homes. This year, May is also being celebrated as Better Your Living Month in a national promotion effort sponsored by Operation Home Improvement.

This is a fortunate coincidence for heating-cooling dealers. What better way is there to better your living than to install a year 'round comfort system in your home? By joining in on the Better Your Living Month promotion in your community, you can have an ideal opportunity to tell this story to the buying public and give your cooling sales a boost.

If your community has an ohi program, it no doubt has big plans for celebrating BYL Month. Building contractors, electricians, painters, plumbers, plasterers and lumber dealers will be taking an active part in the program. The only way you can be sure you will cash in on the results is to join them in making the month a success.

What can you do? Here are some ideas on how you can tie in with the local ohi programs:

- 1) Play up cooling in your ads and use a Better Your Living theme during the month. If local newspapers plan special editorial sections make sure they contain articles on summer air conditioning.
- 2) If home shows are planned, make sure they stress remodeling. Let folks cool off with a demonstration cooling unit in your exhibit.
- 3) Organize a home owner clinic to answer questions on summer air conditioning, give special emphasis to financing.
- 4) Some communities have planned demonstration house remodeling projects to show what can be done. Make certain any such project in your community includes central cooling.
- 5) Offer prizes for the best statement on the subject, "Why I'm glad my home is centrally cooled," or plan some similar contest.



Here Are More Ideas for Better Your Living Month

EACH MONTH American Artisan contains articles full of ideas that you can use to promote your business. Most of these ideas could be used effectively during Better Your Living Month. In this issue you may want to look at the following articles for suggestions:

Fifteen Ways to Boost Your Sales (see next page) — In this article alone there are 15 ideas that you can use during May.

He Sells Cooling by Talking the Housewife's Language (see p. 68) — Dealer tells how he makes cooling sales, gives other tips.

Two Stage Cooling (see p. 78) — Reveals sales approach used by dealer to sell two stage cooling to buyers of custom built homes.

Proves Dollars and Sense of Sales Promotion (see p. 96) — Tells how dealer increased business volume through sales promotion for second year in a row. Tells what he spent and how he spent it.

To Build or Not to Build? (see p. 102) — Contains ideas on how to use showrooms, window displays.

15 Ways to Boost Sales

This dealer's sales program has ideas that you can use during Better Your Living Month and all year around as well



WHAT MAKES a good sales promotion program? It's hard to answer that question in a way that will satisfy every dealer. Each faces a different sales problem. Some handle nothing but new house installations. Some are strictly in the modernization field. Some have a mixture of both.

Rockford Sheet Metal Works, Rockford, Ill., is in the latter classification. This company has a large volume of new house installations, but it also handles a substantial number of replacement jobs. In addition, it rounds out its business with considerable commercial and industrial work.

Last year this company celebrated its 30th year in business. Joe Godleski started in a small way in 1926. His son, Ed Godlewski (he spells his name differently), eventually joined him in managing the firm. The company has grown to be one of Rockford's largest dealers. It can be easily seen that the company's sales promotion problem is not one of establishing a name or reputation, but of maintaining one.

The Godleskis use many techniques to build business. In fact, a look at their program reveals at least 15 ways by which they keep sales volume up. Eight of these are designed to put their name before the public. Seven are sales techniques. Three are calculated to keep customers satisfied. Many of these ideas could be used by a dealer during Better Your Living Month or any time.

Keeps Name Before Public

Here's what Rockford Sheet Metal does to keep its name before the public:

1 Newspaper advertising. The company concentrates its campaigns in newspapers into three month periods. Depending upon the season either heating or cooling is stressed. Ed Godlewski makes sure that his name and his father's appear in each ad, since the firm name does not include them.

2 Billboards. At various locations around town, the company uses medium size (6 ft × 12 ft) billboards. The locations are changed frequently to give better coverage.

3 Job signs. Joe Godleski makes a real effort to encourage his men to post job signs at the site of each installation. He recently sold an electronic air filter to a woman who called and said, "It seems like no matter where I go around town I see your signs. If you're doing that much business, you must be good."

4 Phone book advertising. Although it is difficult to trace customers back to a specific promotion technique, the company did make an attempt to determine the pulling power of display advertising in the yellow pages of the phone book. In several months during the summer it was able to trace \$3500 in business to these ads. Therefore, it has continued extensive yellow page advertising.

5 Match books. Rockford Sheet Metal makes extensive use of match book advertising. The books are sold to cigarette distributors at about half price.

6 Giveaways. The company passes out small items, such as pencils, rulers and penlights, imprinted with company advertising. These are given out to schools, service clubs, PTA's and other groups.

7 Truck signs. All company trucks are painted with the same color scheme with the company name and the words "heating-cooling" in large letters. This makes the trucks attractive in appearance, and provides strong identification with the company.

8 Attractive place of business. Rockford Sheet Metal has an attractive building with an inviting showroom. It is on a rise above street level and display windows can be seen above parked cars. The grounds are landscaped to add to the appearance.

Promotion Builds Sales

Here is what the company does to directly stimulate sales:

9 Sales presentation. Ed Godlewski has developed a sales presentation built around a loose leaf binder. In the binder are included before and after photographs of recent modernization jobs and letters from satisfied customers.



AN UNUSUAL duct layout is viewed by Ed Godlewski (right), his father and Jim Sawtell, sales engineer



SINCE BUILDING is above street level, display windows can easily be seen above parked cars



ZONE CONTROL on a recent installation is adjusted. Careful balancing keeps customers satisfied



CUSTOMER is shown demonstration burner in Rockford Sheet Metal's attractive showroom

10 Sells quality. The company sells quality rather than price in the belief that customers will be better satisfied and more likely to recommend the firm to their friends. A major portion of the company's business comes from customer recommendations. Even in the new house field the company concentrates on quality builders. Rockford Sheet Metal has lost several builders' accounts because of price, only to have them return later because of quality.

11 Stresses engineering. Ed Godlewski is a registered engineer and this point is emphasized in the firm's promotion. It has been of considerable value in landing commercial and industrial accounts. James Sawtell, sales engineer with the company, also has engineering training.

12 Open houses. During Rockford's annual Parade of Homes showing of new houses, the company's equipment was featured in three homes. Rockford Sheet Metal had men on hand at these open houses to describe the features and advantages of the heating-cooling installations.

13 Home show. A booth is taken each year at Rockford's annual home show. It offers an opportunity to contact many potential buyers.

Keeps Customers Satisfied

Here is what the company does to keep customers satisfied:

14 Proper installation. The company takes pride in its carefully designed installations. It emphasizes good duct work throughout. The salesmen strongly urge zone controls. Nearly all jobs are set up for the addition of summer cooling. Special care is taken in balancing. Ed Godlewski says, "We make an honest endeavor to make all our jobs work right. People are willing to pay a little more for such service. Of course, at times it costs us some money, but it still pays off in the long run."

One key to success in proper installation is the fact that most of the company's employees have been with the firm from six to ten years. They take pride in seeing that jobs are installed to meet high standards.

15 Good service. Rockford Sheet Metal offers its customers prompt service day and night. Although the company's service department just about breaks even, Joe Godlewski feels its real profit is in keeping customers happy. "They talk about it," he says. "And their friends come to call on us."

How to Control Excess Humidity

These recommendations will help heating dealers prevent or correct common humidity problems encountered primarily in new homes

By Clarence L. Grandstaff
C. A. Olsen Mfg. Co.

EXCESS HUMIDITY and condensation in the home have long been subjects of extensive research by the heating-cooling industry, colleges, paint manufacturers and insulation producers.

Owners of new homes often are inclined to blame excess humidity on the heating system, particularly the furnace, because they are unfamiliar with the causes of condensation. For the same reason, many heating dealers might be inclined to accept the blame.

Water vapor comprises a large percentage of the products of combustion when any fuel is burned. As much as 9 lb of water will be produced in releasing 100,000 Btu per hr from natural gas fuel or in burning one gallon of fuel oil. In other words, a 100,000 Btuh input furnace would produce approximately 9 lb of water per hour if the burner operates continuously.

When unvented gas burners are operated in a closed space such as a utility room, the products of combustion tend to remain in the house and evidence of excessive moisture will appear. However, when a flame is confined to an adequate flue, the products of combustion and the water vapor will be vented to the outdoors. If the chimney will not carry off the moisture-laden flue gases, these gases will spill from the diverter. The result will appear

as condensation on the insides of windows or any other surface which has a temperature below the dew point temperature of the air.

Proper Diverter Installation Is Essential

Even a good flue may not always be able to dispose of the combustion products if the wrong type diverter is used or if it isn't properly attached to the furnace. In certain cases when a flue has become blocked, water has actually run off the inside surfaces of the walls. This condition was caused by the products of combustion spilling from a draft diverter, and can be avoided by making sure the flue is open and the diverter is properly installed.

Spillage from a down draft diverter can be checked quickly by turning the burner on and allowing it to operate for about two or three minutes, then passing a mirror below the open portion of the draft diverter. If the mirror surface shows evidence of moisture or water vapor, spillage is occurring.

If spillage is evidenced, the installer should make sure that: 1) the diverter is properly positioned on the unit, 2) there is no stoppage in the flue, and 3) other appliances are not interfering with the draft. He should also check to make sure exhaust fans are not pulling a negative pressure on the building and causing a down draft.

Moisture Problem More Acute in New Homes

Moisture problems in new buildings are much greater than in older ones because of the tremendous volume of water used in the foundation construction and in plastering (approximately 5600 lb of water for a six room house). It is also possible that the new lumber used in the framing will contain more moisture than wood which has had a few years to dry out. When air is heated its capacity to hold moisture is increased, and unless moisture is added the percent of relative humidity decreases.

SPILLAGE from down draft diverter is checked by noting evidence of moisture on mirror inserted below open portion of diverter after burner has operated for a short period





MOISTURE MIGRATION into the crawl space can be controlled by overlapping sheets of 55 lb roofing paper and treating the walls with asphalt impregnated insulation

Because of this characteristic, heated air absorbs moisture from the materials used in construction. This moisture-laden air then comes in contact with the glass surface, which is cooler and below the dew point temperature of the air, and condensation occurs.

Complaints of this nature are more numerous in new houses than in older homes not only because of the water present in the new materials but also because the new houses are put together so tightly that excess moisture cannot escape. In older buildings air leakage around the doors and windows is usually more pronounced and because of this infiltration, air with a low moisture content enters. Exfiltration of the same quantity of air removes much of the excess moisture that was absorbed by the drier entering air. Fixed sash and weatherstripping have materially helped to reduce air leakage (infiltration and exfiltration) and the means of moisture reduction from this source.

Too Little Moisture Is Problem in Older Homes

Moisture or vapor in the air migrates through the structural materials to the atmosphere where the vapor pressure is the lowest, if a good vapor barrier is not provided. Many houses are now constructed with good vapor barriers in the ceilings and outside walls to prevent migration of moisture through the walls and ceilings to the outdoors. However, older houses generally do not have adequate vapor barriers and moisture migrates through the walls and ceilings as well as infiltrating and exfiltrating. In these cases the moisture lost from the house is often excessive and must be replaced by humidifiers.

When vapor can pass through the walls of a house, it finds its way into the insulation and sometimes freezes. This condition results in wet walls and rotting of structural timbers. Sometimes this moisture passes through the walls and is drawn out by the sun shining on the outside surfaces. If the paint is chalky, it evaporates into the air and no paint damage will be observed. However, if the paint forms a seal as would be obtained with enamel, varnish, etc., blisters are apt to appear. The water vapor in the blisters probably has passed through the materials of construction to the outside edge of the wall

where the paint has set up a barrier through which it cannot pass until the seal is ruptured.

Crawl space houses and homes built on slabs also may have moisture problems which are not present in houses having full basements. If the earth below the floors has a high water table the water in the soil may move upward by capillary attraction and enter the building through the floor. Moisture enters the crawl space area and passes through the floor to the rooms, or moves to the under-edge of a slab and then passes through the slab and into the living area. In both crawl space and slab houses a vapor barrier should be laid over the earth before the floor is constructed. Manual 4 of the National Warm Air Heating and Air Conditioning Association provides the best known guide for this type of construction.

Outside Air Duct May Be Required

Presence of excess moisture in a building may indicate that the building is so structurally tight that adequate ventilation is impossible. The draft diverter may be spilling for the same reason. Should the diverter spill for no apparent reason the installer should open a window and observe the diverter operation. If spillage stops, inadequate ventilation is indicated and an outside air duct should be connected directly to the return side of the furnace or be run in such a manner as to make combustion air available at the fuel burner's primary air intake.

Other sources of moisture in a building are those produced in preparing food, drying clothes (either by hanging or with unvented dryers) and bathing.

It is obvious that a rather large quantity of moisture is produced in any home and that the furnace will only add to this moisture content when the chimney fails to remove the products of combustion. The other sources must be taken care of in some other manner, possibly through an outside air duct or other method of venting. Installers should be careful in recommending exhaust fans unless the same amount of air that is exhausted is allowed to enter the building — through some source other than the furnace or fireplace chimney.

'Biggest' Conversion 2½ Million Pounds



Air Conditioning Chicago's Field Building:

ARCHITECTS OF prewar office buildings evidently did not foresee the demand that business and professional people would create for air conditioned office areas. Thus, the installation of air cooling equipment in existing office buildings becomes an expensive undertaking primarily because of space limitations. The sheet metal contractor becomes an important factor in such an undertaking. He and his staff must be capable of

working at maximum speed and producing an air distribution system that calls for the highest type of skill. Initiative and imagination must be applied at every turn; craftsmanship of draftsman, journeyman and apprentice is taxed to the limit. These are the prerequisites that must be met in modernization work.

This is a report on how the air distribution system for Chicago's Field building was fabricated and in-

stalled by the R. B. Hayward Co. The company is headed by W. A. Kuechenberg, who is also president of the Sheet Metal and Air Conditioning Contractors' National Association. Mr. Kuechenberg credits the success of the job to Frank Schaefer, chief engineer; Frank Lieske and Harold Kuechenberg, field and shop general superintendents; and job superintendents Edward A. Penny, Robert Deitelhoff and Charles Tobo-

Job Calls for of Sheet Metal

SMACCNA members visiting Chicago should mark as a "must" a visit to W. A. Kuechenberg's pride and joy — the air distribution system which provides year 'round comfort for 816,000 sq ft of one of the city's biggest skyscrapers



ALL SUPPLIES, duct sections and equipment were raised to 25th floor level from alley by 40 ft crane and hoist



HIGH ON THE TOWER of the Field building, mechanics install first panel for another section

lik. The system was designed by Naess and Murphy, architects, to handle 816,000 sq ft of tenant area (approximately 200,000 sq ft had been previously air conditioned). This is believed to be the largest single conversion of any office building yet to be undertaken at one time.

The building is 44 stories high and has a setback at the 25th floor. The first five floors had been air conditioned previously; thus the contract involved only the top 39 stories. One of the major considerations of this type of job is the space required for blowers and other large machinery. Any forfeiture of space designed for tenant occupancy results in a substantial loss in rental revenue and must be charged to the overall cost

of the job. Therefore, it is imperative to keep this loss at a minimum. In the Field building, this space requirement was held to approximately 3000 sq ft by utilizing the roof spaces at the 25th floor setback and erecting external duct towers on the north side of the building tower. (The loss in tenant area usually varies from 2 to 4 percent of the total rentable area.)

Building Divided Into Zones

Theoretically, the tower portion of the building was divided into two zones for each floor with a duct system from the 26th floor penthouses supplying each zone. The main building was divided into four zones sup-



DAILY CONFERENCE between erecting superintendents and draftsmen keeps materials flowing smoothly, assures adherence to specifications



PLACEMENT OF equipment must be exactly according to specifications to avoid complication with other equipment to be installed later. Superintendent and chief draftsman check blower foundation against specifications

Specifications Show Magnitude of Job

These specifications were set up for compliance by the sheet metal contractor:

"All high velocity hot and cold ducts in the corridors, stair wells and in tenant spaces shall be constructed with slip joints brazed to assure airtight joints. Return ducts in these areas shall be similarly constructed except joints may be locked with flat head screws and the joint made airtight by the use of rubberized sealing compound. Pittsburgh corner locks shall be used for all ducts. No external angle bracing shall be used for these ducts, but suitable internal stiffeners and tie rods shall be used to assure the minimum amount of deflection and deformation of the ducts. Final joints between sections of ducts and risers shall be made with a flanged joint and gasket or by internal brazing.

"All hot and cold duct risers and fan room ducts not in corridor ceilings shall be rigidly braced externally with angle reinforcing. Construction of return ducts shall be in accordance with standard recommended practice using angles or drive cleats in accordance with the ASHAE code, except that tower return riser ducts shall be flanged gasketed angle joints riveted or spot welded to ducts and sealed with a rubberized gasket material. All joints in high velocity

hot and cold ducts shall be made tight against 10 in. WG static pressure. All return air ducts shall be made tight against 4 in. WG static pressure."

Specifications for sheet metal used in low velocity ducts and apparatus housings were based on these requirements:

4 to 30 in. wide	24 ga galvanized
31 to 60 in. wide	22 ga galvanized
61 to 80 in. wide	20 ga galvanized
Apparatus housings	18 ga galvanized

High velocity ducts and apparatus housings also specified galvanized sheet metal to meet these requirements:

4 to 30 in. wide in equipment	
rooms, main risers	20 ga
31 to 60 in. wide in equipment	
rooms, main risers	18 ga
61 in. and over in equipment	
rooms, main risers	16 ga
Ducts in corridors and tenant	
spaces	20 ga
Apparatus housings	16 ga

The job will require about 16 months to complete and will have consumed approximately 2,500,000 lb of sheet metal when finished.

plied from four fan rooms at the 25th floor. Actually the ends of the duct systems on each floor were joined so equal air pressures could be maintained throughout each duct.

Each of the twin duct towers is 20 ft, 10 in. wide and protrudes 8 ft, 2 in. from the building. The framework consists of 6 in. steel channels for the corner risers and 12 in. steel beams at every second

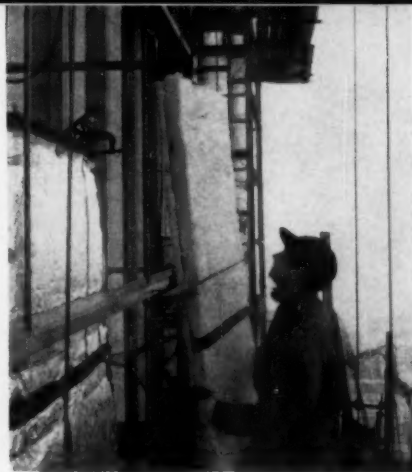
floor level; 7 in. steel channels were used as intermediate supports. Two vertical sag rods were installed at equal distances from each of the two corner risers to provide support across the 20 ft, 10 in. front span. The duct towers were designed to accommodate the graduated duct system for all floors above the 25th floor level.

Floors below the 26th floor level

are supplied by duct systems originating in fan rooms located at each of the four corners of the setback at the 25th floor. The duct systems for the north sides of floors 6 through 24 are fed from ducts located in two abandoned elevator shafts. Part of the duct systems for the south sides of floors 6 through 24 are located in two former ventilation shafts and part are in tenant areas.



THREE DUCTS were split at lower end of the tower ducts. Four man crew installs front section of duct



TOWER CREWMAN hands up insulated duct panel to be welded and bolted to other panels in tower duct

The space for the five new fan rooms was obtained by building a 78×45 ft curtain wall panel room at each of the four corners of the building setback and a 184×35 ft room along the north side of the building, over the elevator penthouse. The four corner fan rooms are 17 ft high. The tower fan room is 19 ft high.

These equipment rooms have an aluminum skin and backing sheets with 2 in. of insulation between. The panels are backed against a 6 in. concrete block wall. All concrete blocks and the machinery room floors are lightweight insulating concrete. Floors are 6 in. thick ($3\frac{1}{2}$ in. existing roof plus $2\frac{1}{2}$ in. of new lightweight concrete).

The duct towers are enclosed with uninsulated aluminum siding. Insulation of the tower walls would have been superfluous because the ducts inside the towers are individually insulated both inside and out with glass fiber insulation. The 2 in. thick outside insulation is covered with aluminum foil. The inside insulation is 1 in. thick.

Three Duct System Used

The equipment for heating and cooling is in the sub-basement of the building. Air is piped to chilled water coils and steam coils in each duct system. The heating and cooling system is called a three duct system. One duct provides warm air

the year around, a second provides cool air each day of the year, and a third handles the return air. The supply ducts are identified as "hot ducts" and "cold ducts."

These two supply ducts are in the high pressure duct system. Takeoffs of spiral ducts feed mixing boxes located above the doorway from each office to the corridor, or within the tenant area if necessary. The warmed air is mixed with cooled air in a proportion which satisfies the thermostat for the area being served.

In order to maintain complete control over the temperature within the building the year around, cold air and hot air are supplied every day. The amount used depends on the requirements of the tenants' thermostats and their effect on the air valve operation within the mixing box.

The air being discharged from the blower enters a split duct system. Air is passed through the "hot" and the "cold" coils in the proportion required by the various thermostatically controlled mixing boxes. At the transition pieces from the supply to each coil, the duct is lined with 4 in. insulation held in place by flat wire mesh. The discharge transition pieces from the heating coil and the cooling coil are similarly insulated.

Work Follows Set Pattern

Starting at the supply plenum of a tower duct system the work generally progresses as follows:

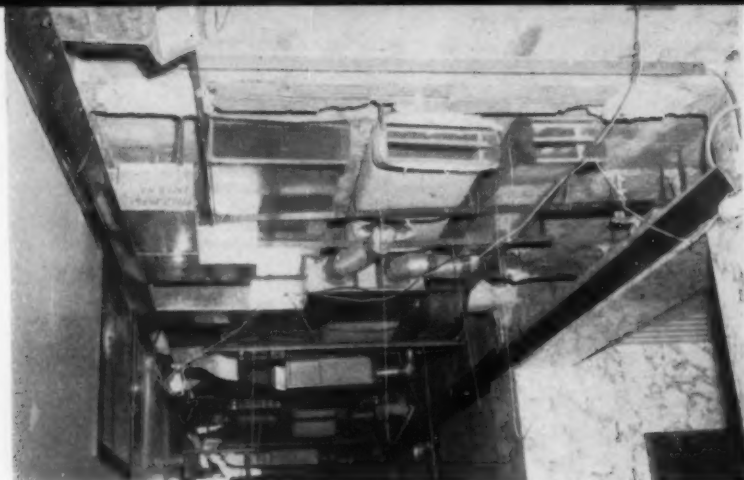
The ducts from each blower are internally insulated for the entire length of the fan equipment room plus 20 ft beyond the fan equipment room wall. The lining used is 1 in. insulation with a vinyl coating on the side exposed to the air flowing in the duct.

The duct is 144×30 in. at the point where it enters the tower. It is wrapped with a 2 in. layer of aluminum foil covered glass fiber insulation. (Sections of insulation are joined with a self-sealing fabric tape to form a moistureproof barrier on the outside of the insulation.) As the duct rises toward the top of the building, runouts are extended to each floor. Trunk duct sizes are reduced after takeoffs have been made for four floors, forming a graduated trunk system to maintain air velocities at the end of the duct system equal to those at the beginning.

In general, the velocities of the air in these tower ducts are: 4300 fpm for the hot duct, 4600 fpm for the cold duct, and 2200 fpm for the return duct.

Tower Ducts Prefabricated

The tower ducts were prefabricated at the company's shop and delivered to the site as separate sheets, with pieces of $2 \times 2 \times \frac{1}{4}$ in. angle iron along the top and bottom edges. The angle iron was spot welded to the panel. As each side panel was put in place, the side seams were



EVERY INCH OF corridor ceiling space is required by hot and cold supply ducts. Shown is beginning of hall takeoff ducts

welded together. The angle iron rims of two sections formed a companion flange. A rubberized gasket material was inserted between the flanges to provide an airtight companion flange. The two sections were bolted together with brass bolts.

The takeoff ducts from the trunk line feed into the building through four openings in the building wall. (A fifth opening in the wall is for the return air duct connection.)

Two of the ducts are for the "hot" air and the other two are for the "cold" air. Two hot supply and two cold supply ducts had to be used to maintain maximum corridor ceiling height. Building structural supports made it unadvisable to permit ducts to cross over. To avoid this, the two sets of hot and cold air ducts were run into the building in a stair well. One hot duct and one cold duct follow the stairs to serve the floor above the point of entry while the other set of hot and cold ducts dips to the floor below.

Corridor Ducts Split

Where the ducts feed a corridor, they split to feed each section of the building, eliminating the necessity for crossovers. The cold supply ducts running along the corridor ceilings were covered with $\frac{1}{2}$ in. insulation. The velocity of the air in the corridor hot ducts is 2800 fpm; in the cold ducts it is 3400 fpm; and in the return duct, 1500 fpm. The air is still operating under a possible

10 in. WG static pressure in the corridor ducts but is reduced at the mixing unit for discharge into the low pressure air distribution system which feeds the tenant areas.

While the tower ducts were joined together by welded seams and companion flanges, the corridor ducts were fabricated on the brake and joined by a Pittsburgh seam which was taped with a fabric material containing a mastic cement. Sections of corridor ducts were joined by welding at the overlapped joint.

Turns in the ducts were made as gradual as possible. In cases where the radius of the turn was less than one duct width, turning vanes were used to move the air around the bend smoothly and evenly divided. Any necessary change in the slope of the duct was made gradually and the full area was retained.

All horizontal and suspended ducts are supported with galvanized strap iron extending down each side of the duct. The strap iron was fastened down the full side with sheet metal screws and secured to the construction with expansion or toggle bolts. If angle iron side reinforcement was used, the strap iron supports were fastened to the projecting leg of the angle iron. Supports are no more than 8 ft apart.

Check Duct Runs for Leaks

At the completion of each corridor duct run, the openings were temporarily sealed with sheet metal caps

placed over collar connections and the joint was sealed with thick rubberized paint. A high speed, high pressure portable blower with a 15 ft flexible duct connection was connected to one end of the sealed duct. This blower assembly contained a U tube filled with mercury and calibrated to register the static pressure. High pressure supply ducts were subjected to the 10 in. static pressure for four hours. During the test each joint was painted with a soap suds solution by the testing engineer to locate leaks. The test was rerun as often as necessary until the entire section was airtight.

Two hundred fire dampers were installed according to the National Board of Fire Underwriters' Bulletin No. 90. Fusible links for fire dampers were rated for 50 deg above the maximum temperature of the air in the duct. Where the duct penetrates a fire wall, a fire damper was installed. Most of the fire walls encountered are those surrounding staircases. Reinforced access doors were installed at all fire dampers. These access doors were gasketed with asbestos material cemented to the door frame.

Backward curved, non-overloading, hollow section bladed centrifugal blowers are used. The inlet to each blower has vanes for feeding the air stream to the low pressure area within the blower. Exhaust system blowers have manually adjustable inlet vanes.

Capacity Is 830,000 Cfm

The capacity of the new air distribution system is 830,000 cfm, a little more than 1 cfm per sq ft of conditioned area. Two-thirds of the air supplied is returned for reconditioning and recirculating. One-third of the air required is taken in from the outside to meet city code requirements. This air is obtained through louvers in the north walls of the fan rooms at the 26th floor level.

Thirty-one new blowers handle the 830,000 cfm. Capacities of the supply system blowers range from 26,000 to 50,000 cfm; those for the re-

turn air system are from 66,000 to 70,000 cfm.

Reinforcing Cuts Noise

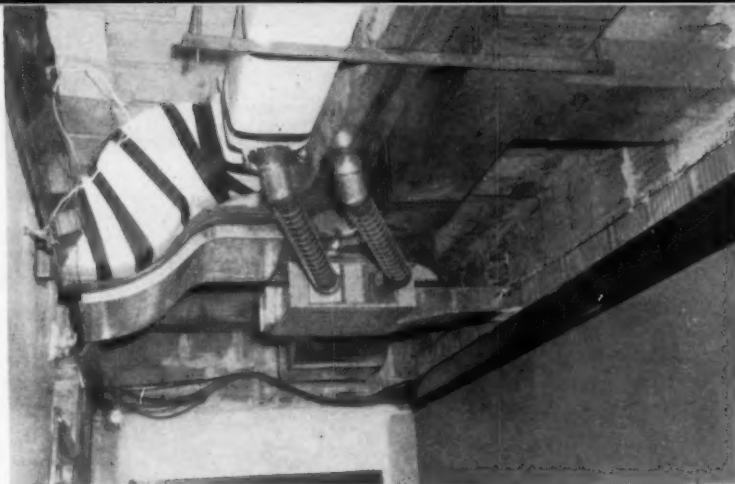
All blower connections to the duct system, both at inlet and discharge points, are flexible. The connections were fabricated from fire resistant materials and are held in place with galvanized metal collars. Each connection is 4 in. long with 1 in. of slack to prevent vibration transmission from the blower to the duct system. Collars were bolted at 6 in. intervals or less.

To reduce noise transmission further, isolation bases were mounted on concrete blocks which contain structural steel channel reinforcements. These blocks are isolated from the floor by spring type vibration equipment.

Blower chambers were fabricated from galvanized sheet steel, each including housings for air filters, blast coils, mixing chambers and intake chambers. Galvanized angle iron and channels were used for reinforcement at each side of access doors and at a maximum of 24 in. intervals in walls and top surfaces. Care had to be exercised to make all walls free from vibration and deformation when blowers were in operation. Often the reinforcing angle iron and channels were spaced closer than the required 24 in. to provide the rigid support needed to keep walls free from vibration and deformation.

Bottom edges of the chamber walls have continuous floor angle irons anchored to the floor and to the vertical reinforcing angles and channels to provide additional support for the walls. The floor angle irons were sealed to the floor with a mastic compound to prevent air leakage.

Each compartment has a 24 × 60 in. access door. These hinged doors were fabricated from a front and a back panel with 1 in. of insulation between panels. The panels were diamond braked to provide rigid support. The door edges were faced with felt to insure a tight fit. Brass hardware was selected to reduce rust and corrosion. Four cam type fasteners on each door insure a



AT END OF HALL, hot and cold ducts enter mixing units where high pressure air is reduced to low pressure distribution system controlled by individual office thermostat

tight fit against the felt facing material.

All materials for the duct system and apparatus rooms were prefabricated at the R. B. Hayward Co. shop from shop drawings made by five company draftsmen. These men prepared more than 150 individual detailed drawings at the job site. Additional drawings were required to detail the requirements for tenant areas adequately. The drafting department was assigned a 20 × 15 ft room by the building management and moved to larger quarters 1½ months before the job got started with their drafting boards, file cases, tracing tables, blueprint racks and two master reference tables.

Eleven blueprints of each drawing had to be made. Arrangements were made with a nearby blueprinting plant to provide four hour service. The eleven copies were distributed as follows: one to the shop, one to the drafting office, four to the architect, three to the building management office and two to job superintendents.

Handling Problems Magnified

Parts had to flow from the shop fast enough to keep 150 mechanics busy. Approximately 50 shop mechanics were required to maintain this flow rate. All heavy equipment was delivered to the building by truck and hoisted to the 25th floor level by a 40 ft crane and hoist as-

sembly. The crane was operated by the general contractor who charged the sheet metal contractor for time spent on this operation.

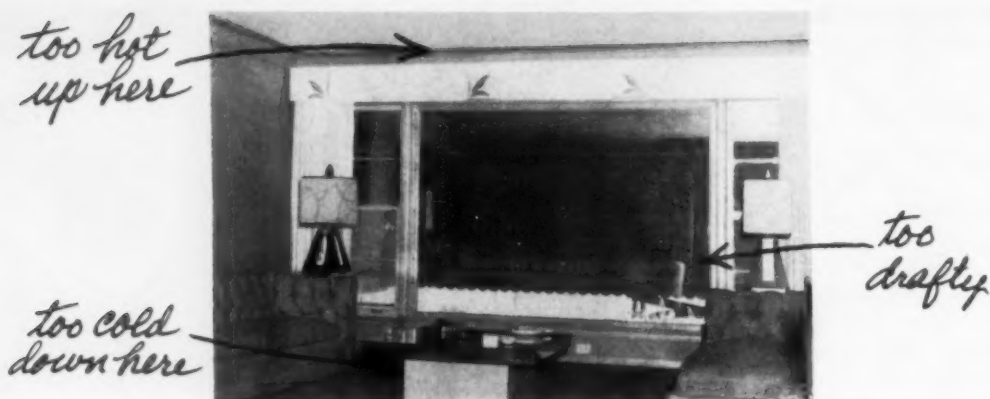
Panels used for erection in the tower risers were hoisted by rope, pulley and a wide sheave connected to a 5 hp, 220-v motor anchored to building supports. The journeyman handling the improvised hoist controlled the lifting speed by adjusting the tension he exerted on the wide sheave. The usual speed used was about 75 fpm.

A crew of nine was assigned to each tower riser — four welders, three men erecting and fabricating, and two workers installing the runouts to the wall openings.

In assembling the panels for the riser ducts, some of the journeymen worked inside the duct on specially developed stages. These stages utilized the ¼ in. round stiffeners passing through the duct sections.

A 2 ft wide, three sided platform was swung from the top of the tower to provide space for two men to work on the runout ducts. This platform, which was raised as the riser ducts advanced up the building wall, was usually located about one floor below the top of the riser. Mechanics vied for the privilege of working on the tower project.

It is interesting to note that not a single serious accident occurred during the tower construction. Safety measures were strictly enforced and observed.



SURVEY FINDS these customer complaints are common

'Why Are Many Homes Uncomfortable?'

. . . asks C. W. Nessel. He calls on the industry to do something about it. He says . . .

- The industry must sell comfort and not cfm, Btu or properly-sized ducts
- Homeowners must be told what indoor comfort means in language they can understand
- Then, consumers will insist that certain comfort standards be met in their homes
- Dealers will find it easier to sell quality systems and beat price-cutting

THIS WILL BE an unusual report since it will include comments and observations that are not normally included in a report on field investigation activities.

During the past six or seven years the mobile laboratory operated by the field investigation committee of the National Warm Air Heating and Air Conditioning Association has literally traveled from coast to coast. It has made between 150 and 200 complete surveys and innumerable "snooping sorties." It has been in every conceivable style of house and tested every imaginable type of warm air heating and cooling system, including some that are a bit difficult to imagine.

It is obvious from our conversations with the homeowner in his own backyard that there are shortcomings

in the warm air heating and air conditioning industry today. That's why equipment manufacturers, heating-cooling dealers, and builders have become accustomed to hearing complaints like these:

- 1) "My feet are cold and my head is hot and I want you to do something about it."
- 2) "The floors are so cold in here that my cat is sleeping on the piano and I have to tuck my toes underneath me every time I sit down."
- 3) "One side of my house is too hot and the other is too cold. Is there anything you can do about it?"

[Note: First of a series of three articles taken from an address by C. W. Nessel, heating industry consultant, Minneapolis-Honeywell Regulator Co., at the annual convention of the National Warm Air Heating and Air Conditioning Association.]

4) "There's a draft — a cold one — blowing on the back of my neck right now."

5) "I'm not comfortable."

The average homeowner and his wife seldom know why they are comfortable or uncomfortable in their home in the dead of winter or the heat of summer. If they happen to be comfortable they thank their lucky stars that they were fortunate enough to get a well constructed house that for some reason or other had a system in it that gave comfort performance. If they are uncomfortable, they blame the house construction and shrug off the heating or cooling system with the comment that one should not expect to be too comfortable in a single occupancy house in the suburbs.

Can Offer More Comfort Today

Today, this industry has more indoor comfort to offer the homeowner than ever before in its history, irrespective of the kind of house he lives in. We have good reason to boast of our know-how for heating and cooling a home. But, when we try to tell the homeowner about it, we speak in meaningless generalities and use technical jargon that sounds like double talk to him.

When homeowners silently accept as inevitable cold floors, frigid air around the ankles, torrid air around the head, and drafty registers which blow cold air down the backs of their necks — then the conclusion is inevitable that something is wrong. It appears that we have been negligent in telling the homeowner the facts of comfort heating.

We offer "guaranteed heating," such as "the house will be heated to 70 F indoors when it is (some specified temperature) outdoors." This vague guarantee means little or nothing since rarely is mention made of where in the house the 70 F temperature will be recorded. Will it be at the floor and in every room in the house, or only at the thermostat? It's anybody's guess.

Such a guarantee could be equally applied to a coal stove in the old fashioned parlor. No mention is made of such things as floor surface temperatures, temperature variations between burner operations, continuous air circulation, and room-to-room temperature balance. The homeowner is too often satisfied with such a vague guarantee because he knows no better. And we have dismally failed to tell him otherwise.

His primary interest is in the comfort of his wife and kids, and perhaps his mother-in-law, too, and not in cfm or Btu or properly-sized ducts. He would not know a Btu if he saw one and probably could not care less about it. We talk of comfort but never define it.

Our industry's methods of merchandising indoor comfort — the real end product that we have to sell — are obsolete and archaic. They are reminiscent of the automotive industry in 1907, when automobiles were still sold on the strength of their components. The non-technical person, who was only interested in a comfortable ride, did not know what they were talking about. Now the automotive industry sells on appeals that a buyer —

Heating Standards Are the Answer

IN THIS ARTICLE Mr. Nessell says that consumers will soon have a set of comfort performance standards written in "Kitchen English." Then homeowners will know what to expect of their heating systems and will be in a position to insist that such standards are met. The standards Mr. Nessell refers to are those developed by S. Konzo, professor, mechanical engineering department, University of Illinois.

These standards were presented in a series of articles which appeared in *American Artisan* over the past two years. The Konzo standards are presently being rewritten in a simpler form for use in consumer education. However, any dealer who has these articles at hand can use them to sell quality heating systems today.

man or woman — can understand and relate in measurable terms to his own life.

Must Change Merchandising Appeals

Our industry must radically change its merchandising appeals if its high level reputation is to be maintained and the current surge of cheaply installed, poorly performing jobs is to be stopped. We must sell the taste and aroma of the apple pie, instead of the recipe that the cook used to make it. We must have comfort performance standards that specifically define what indoor comfort means, and they must be written in "Kitchen English."

Such a set of simplified comfort performance standards will soon be available and then the homemaker will have something that she understands, something that she can use to judge one heating estimate against another by insisting that these standards be the basis of the guarantee. Then, and only then, will the cut-the-price, skimp-the-job, wages and no profit, fly-by-night operator discover that there are other considerations in a job besides the "lowest" price.

Every unsatisfactory job, every toe-tucking woman, every piano-sitting cat is an indictment of our industry's skill, honesty, and integrity. In this era of jobs cut to the bone for a low price, the blame rests upon every level of the trade. This state of affairs will be corrected only when the homemaker has a definition of what we mean by indoor comfort that is stated in the kind of "Kitchen English" she understands. When that happens she will purchase a heating or cooling system as intelligently as she does any other appliance in the house, and the chisler will be out of business.



12,000 Perimeter Systems Bring Comfort To 'Community Living' Housing Project

Provision for year 'round air conditioning is a vital ingredient to the comfort theme of this huge development. Here's how the responsibilities involved in engineering, scheduling and installing of the systems are being handled

By C. T. Pfirrmann
The Williamson Co.



ATTRACTIVE BROCHURE provides extensive information about heating and cooling of residences for the prospective home buyer

A NEW APPROACH to community living is being developed 13 miles north of Cincinnati where 50,000 residents will work, live and relax in year 'round comfort. One year ago the site of this project was 3700 acres of farm land; today it is known as Forest Park and will contain not only 12,000 houses of every type but stores, churches, schools and manufacturing plants.

The warm air heating industry has been given the responsibility of providing year 'round comfort for the residents. Perimeter air distribution is used throughout each house and the ductwork is sized for cooling requirements. In most cases year 'round air cooling equipment is being installed; however, where cooling equipment is not installed at the time the house is erected, provisions are made to accommodate the equipment at a later date with a minimum of alterations.

The air distribution systems had to be adapted to seven general types of floor plans, ranging from rambling ranch style structures on concrete slabs to multi-level and two story houses with basements and basement recreation rooms. The selection of equipment to match heat loss and heat gain calculations is also influenced by the orientation, glass area, structural features, shade and room use of each building.

In heating slab floors, whether they are in ranch style houses without basements or part of the lower level recreation rooms in two story and other multi-level houses, the duct work is imbedded in the concrete slab and warm air is supplied through perimeter outlets.

To provide for the installation of refrigerant piping to outside air cooled condensing units for the slab floor ranch style houses, a 3 in. conduit is run from the fur-

RESULTS of 1956 sales
are checked by Walt and
Mary Stevenson



***A second look at
test dealer's books...***

Proves Dollars and Sense Of Sales Promotion

**For the second year in a row, this dealer substantially
boosted his business volume. Thanks to an intensified
promotion program, sales were up 158 percent over 1954**

TWO YEARS ago a test program was launched in Terre Haute, Ind., to determine how a well planned and carefully scheduled promotion program could boost a dealer's business. The dealer selected for the test was Walt Stevenson, Hoosier Heating and Sheet Metal, Inc. He agreed to cooperate fully in the program and to open his accounts for examination.

Last March American Artisan reported the results of the first year of this program (see March 1956 issue, pp. 64-67). During that period Hoosier Heating increased its volume of business by 82 percent and boosted its profits by 40 percent.

Now, at the end of the second year of the program, we have returned to Terre Haute to get the 1956 report on Hoosier Heating. Last year Walt Stevenson continued his promotion program, basing it on his experiences during the first year. His promotion budget was increased about 10 per-

cent. And when the final returns were added up, he found his business volume in 1956 had increased 42 percent over the year before and profits were up 20 percent.

In the two year period Hoosier Heating's annual volume increased from \$111,963 to \$289,741 — a jump of 158 percent. The amount spent for promotion and advertising over these two years was \$7500 more than would have been spent if the 1954 program had been continued.

In 1956, as was also true the year previous, there was no substantial gain in business activity in the Terre Haute area to explain Hoosier Heating's increased volume. In 1955 the city had been classified by the government as an area where "job seekers were considerably in excess of job openings." In addition, last year two plants in the area were shut down, laying off some 1400 employees. Although the community is not

dependent upon any one industry, this decrease in employment had its effect on the overall sales picture. Hoosier Heating's gain in volume was made despite this loss in customer potential.

It seems logical therefore to conclude that the company's 1956 gain in sales was again due to its aggressive advertising and sales promotion.

Changes Made in 1956

During the first year of the program a variety of advertising techniques were tested. A number of these, including radio and direct mail, were dropped during the second year because Mr. Stevenson felt in his particular case they were not effective. In addition, during the second year he felt that the objective was not so much to make his company's name well known as it was to keep it that way.

Here's the Story in Figures

	1954	1955	1956
Cash receipts	\$104,491	\$186,319	\$273,157
Charge sales	7,472	12,757	16,583
Total sales	111,963	204,577	289,741
Advertising costs	1,455	4,990	5,518
Percent ad costs to sales	1.3	2.5	1.9
Net profit		Up 40%	Up 20%



Look here for
Better Your Living
Month ideas

Television advertising was greatly increased over the first year with expenditures jumping from \$650 to \$1480. During 1955 Hoosier Heating had sponsored a daily weather telecast. Last year this was dropped for a 10 minute sports program before the boxing matches and before college basketball games. Mr. Stevenson feels that these TV programs are very effective. They have produced business from as far as 35 miles away.

For the television commercials, Hoosier Heating's own salesmen are used rather than professional announcers. Various props give the commercials action and capture attention. For example, in one the salesman was shown throwing a dart at a target. In another a shovel was used to emphasize the inconvenience of hand-fired heating.

Mr. Stevenson also made extensive use of newspaper advertising during both years. During 1956, however, these expenditures were reduced somewhat to provide more money for television. The newspaper schedule during 1956 included a two column ad about every two weeks. Larger ads were used from time to time for special events. During the holidays the company took a full page ad to wish customers and prospects a Merry Christmas.

During both years, Mr. Stevenson also used a color film trailer at a local drive-in theater. These films,

The Folks at Hoosier Heating
Take Pleasure in Wishing You

A
VERY
VERY
MERRY CHRISTMAS

Home of Mueller Climatrol
Walt Stevenson's
HOOSIER HEATING
AND SHEET METAL, INC.
1256 Lafayette Ave. L4023

NEWSPAPER ads, like this full page Christmas greeting, emphasize the personal angle with pictures of employees

which are made available by the furnace manufacturer, have been very effective, he feels.

Staff Enlarged

An expanded volume of business naturally requires an increase in employees and facilities to handle it. At the start of the program two years ago, Hoosier Heating employed 10 full time shop, service and installation men and operated two trucks and two passenger cars. During the fall peak in 1955 the organization had grown to 19 men, five trucks and two cars. By the fall of 1956 the number of men employed had increased to 30 and one additional truck was used.

The company's plans for 1957 call for less concentration on increasing volume and greater emphasis on improving profits. The year, however, got off to a good start with 36 installations made in January. Mr. Stevenson also plans to place increased emphasis on cooling starting this spring and continuing on through the summer months.

The company has acquired additional office space on the second floor of its building. This will be used as a headquarters for salesmen, for an engineering office, and for small parts storage. A warehouse has been rented to provide greater storage space for larger equipment. It is located about a mile from the shop.

Mr. Stevenson feels it is especially important to make certain that customers are satisfied with the equipment when installed and that they continue to be satisfied through proper service. He uses a telephone answering service to handle calls on a 24 hour basis. This year, for the first time, he is offering his customers service policies.

Despite the fine record set by the company during the past two years, Mr. Stevenson says he believes the worst mistake a dealer can make is to feel self-satisfied. "Whenever you lose your enthusiasm, you're done," he says. You don't have to talk to Walt Stevenson very long to realize that his enthusiasm is one of his greatest assets.

SMACCNA Conventioneers:

Meet the Associations Which Serve Chicago Area

These are the home teams which represent the heating-cooling-sheet metal industry in the host city for the annual convention May 15-18

WITH FINAL DETAILS being rounded out for the annual convention of the Sheet Metal and Air Conditioning Contractors National Association in Chicago May 15-18, dealers and contractors will be building their personal plans around scheduled activities.

Association-minded visitors will logically turn to members of local trade organizations for guidance in making the most of their visit to the progressive city with its spectacular heating-cooling-sheet metal installations.

Three associations serve the Chicago area. Many of the members are well known to SMACCNA convention visitors; some are leaders in the national association. And they're all proud of the pioneering work they've done in Chicago and its outlying communities. (See Artisan's report on W. A. Kuechenberg's conversion job in the Field building on page 86 of this issue—probably the largest of its kind ever undertaken at one time.) These members will be on hand to recommend points of interest and provide background information to help visitors use their spare time to best advantage.

Following are brief sketches of the three local associations; their addresses, officers and activities:

The Ventilating & Air Conditioning Contractors Association of Chicago is in Suite 1612, 228 N. LaSalle St. The organization devotes considerable energy to training apprentices, conducting research in current industry problems such as the current investigations of velocity testing devices and hazardous vapors and dust, and

promotion of the national association's proposed trade practice rules. Officers are: W. A. Kuechenberg, president; Phillip W. Olmen, vice president; Fred B. Gillespie, secretary; P. R. West, treasurer. Grabel G. Weber, Jr., Howard G. Jung, Harvey E. Anderson and Fred Haines are directors. L. W. Rogers is executive secretary.

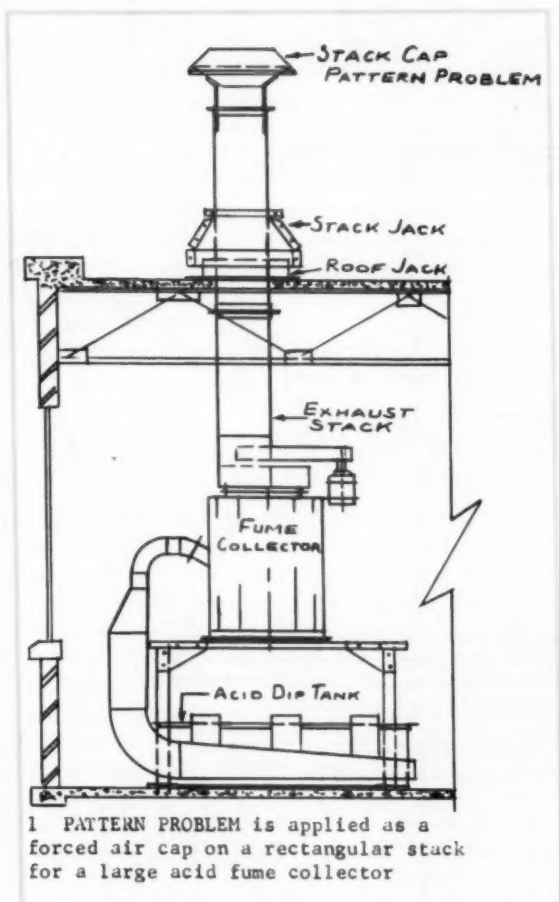
The Sheet Metal Contractors' Association of Cook County, 2629 W. Harrison St., sponsors a very active apprenticeship program which calls for attendance one day a week at a local trade school. A pamphlet describing scope of work of the sheet metal contractor and listing reference material on sheet metal was recently prepared and distributed to architects. Officers are: Roy N. Nelson, president; Gerald P. Myers, vice president; Fred S. Bremer, Jr., secretary; Heaton H. Sykes, treasurer. Roy N. Nelson, William Magerstaedt and Richard F. Robinson comprise the executive board.

The Air Conditioning Contractor's Alliance, 4049 W. Crystal St., is also active in apprentice development and training, and is energetically promoting a Certified Warm Air Heating Program for contractors. An annual feature of the association is its well known Past Presidents' night party, being held May 11 this year. Officers are: Ed Stahler, president; Robert Curran, vice president; Larry Ingham, treasurer; and Theodore A. Criel, executive secretary. Directors are Ed Stahler, Robert Johnson, Robert Curran, Larry Ingham, Barney Sanders, Herbert Tannis, and Al Verbeek.

Use Simplified Method for

Rectangular Weather Cap

... on an air intake stack for
an industrial fume exhaust system



A GOOD RULE for the design draftsman to follow in designing a square type weather cap is to use a constant pitch angle where a number of rectangular caps are to be installed on the same building roof. This will enhance the appearance of the sheet metal work.

For added support for large caps, an angle iron frame should be used at the top of the stack and one bolt on each supporting band iron or angle iron supporting leg should be fastened through the angle frame.

When the cap is designed for an air intake stack, it

is necessary to install a bird screen between the angle iron flange and the weather cap flange.

For the pattern layout problem solution, all the true length lines can be developed from a quarter plan. It will, therefore, be unnecessary to draw the front and end views, Figs. 2A and 2B.

Given the front and end views of a rectangular weather cap, the following is a step-by-step analysis of the pattern problem development.

Quarter Plan Drawing, Fig. 3 —

a) Draw a rectangle equal to the $11\frac{1}{2} \times 13\frac{1}{4}$ in. given dimensions shown in Figs. 2A and 2B. Mark the points A, C, G, K. From Line GC measure down $\frac{3}{16}$ in. and draw a horizontal broken line. Mark the point B at the right end of this line directly below point C. From point A on line KA measure $\frac{3}{4}$ in. to the left and locate point D. Designate the distance between points A and D as length H. From point G draw a line to point D. Where the broken line through point B intersects line GD, establish point F. From point D measure $\frac{1}{4}$ in. to the right and locate point E. Designate distance EA as length L. Draw a broken line from point F to point E.

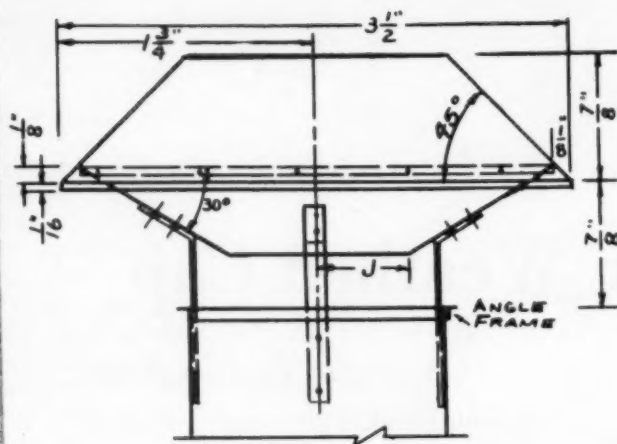
b) From point K measure to the right $\frac{1}{8}$ in. and mark the point J. Draw a broken line from point F to point J.

The Top Pattern, Fig. 4 —

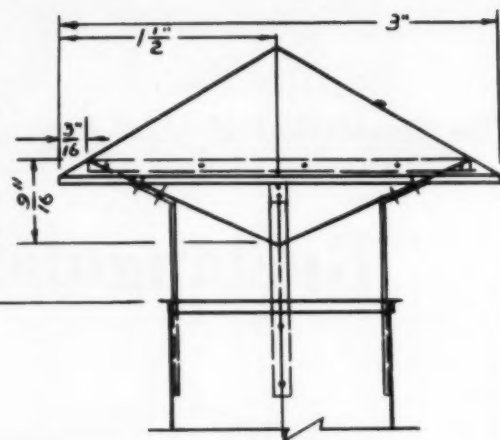
a) Draw the $3\frac{1}{2}$ in. horizontal line G'G'. Bisect line G'G' and draw the vertical center line marked CL. Mark the intersection of line G'G' and the center line as point C'.

b) Draw a right angle. Working from Fig. 3, transfer line AC to the horizontal leg. Measure the given $\frac{7}{8}$ in. top cap height, as shown on Fig. 2A, on the vertical leg. The hypotenuse line A'C' is the developed line.

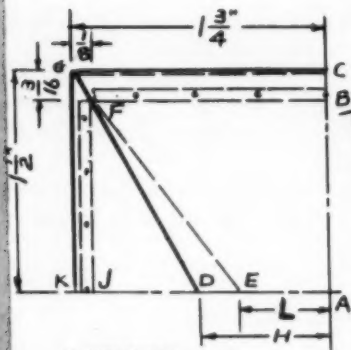
c) With developed line A'C' as radius, and point C' (Fig. 4) as center, draw an arc on the center line and



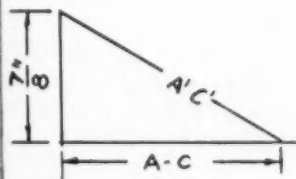
2A FRONT view



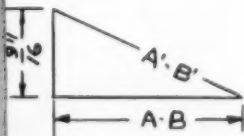
2B END view



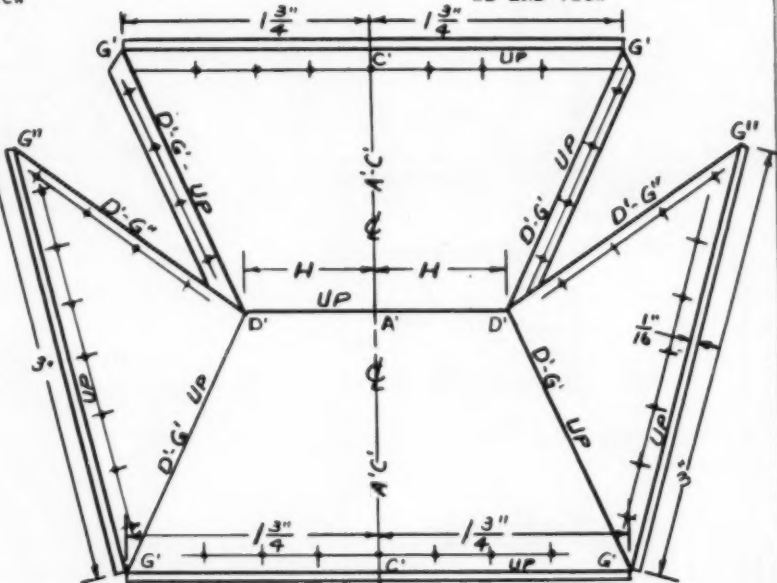
3 QUARTER plan
(simplified method)



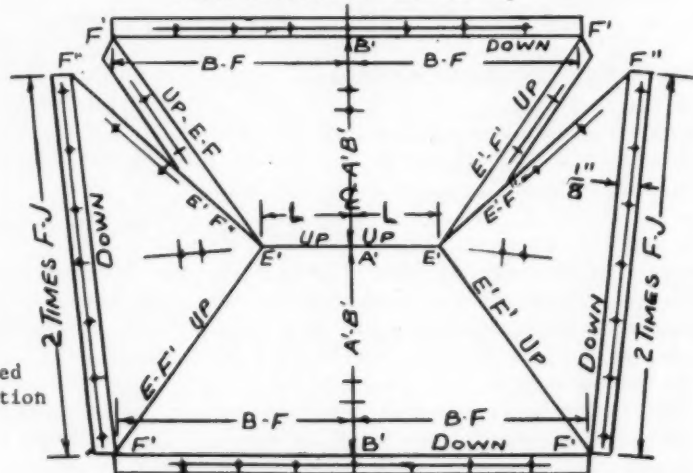
DEVELOPED LINES



Note: Drawings have been reduced
10 percent in size for reproduction
on this page



4 TOP PATTERN of weather cap



5 BOTTOM PATTERN of fitting

mark the intersection point A'. With A' as center, and radius A'C', draw an arc on the center line above point A' and mark the intersection point C'. Through points A' and C' draw lines perpendicular to and extending on both sides of the center line.

d) Set a compass at length H (Fig. 3) and with point A' (Fig. 4) as center, transfer length H on both sides of the horizontal perpendicular line and mark both points D'. Transfer the $1\frac{3}{4}$ in. line CG (Fig. 3) to both sides of the center line (Fig. 4) and mark the points G' and G'. Draw the four lines D'G'.

e) Set a compass at given line length 3 in., as shown on the end view (Fig. 2B), and with points G' (Fig. 4) as centers, draw arcs above and to the right and left of points G' on the lower horizontal line. With line D'G' (Fig. 4) as radius, and points D' as centers, cut the 3 in. radii and mark the points G''. Draw the lines D'G'' and G''G'.

The Bottom Pattern, Fig. 5 —

a) Draw a horizontal line equal to twice the length of the broken line BF (Fig. 3) and mark both points F'. Bisect the line and draw the vertical center line marked CL. Mark the intersection of the horizontal line and the center line as point B'.

b) Draw a right angle. Transfer line AB from Fig. 3

to the horizontal leg and measure the given $9/16$ in. as shown on Fig. 2B to the vertical leg. The hypotenuse line A'B' is the developed line.

c) With the developed line A'B' as radius and point B' (Fig. 5) as center, draw an arc on the center line, and mark the point A'. Through point A' draw a line perpendicular to and extending on both sides of the center line. Set a compass at length L on Fig. 3, and with point A' (Fig. 5) as center, measure this length to the right and left. Mark points E' and E'.

d) With A' (Fig. 5) as center and radius A'B', draw an arc on the center line above point A' and mark the intersection as point B'. Through this point draw a line perpendicular to, and extending on both sides of the center line. Transfer the length of broken line BF (Fig. 3) to the right and left of top point B' on the horizontal perpendicular line, and mark both points F'. Draw the four lines E'F'.

e) Set a compass at twice the length of broken line FJ (Fig. 3) and with points F' (Fig. 5) as center, draw arcs above and to the right and left of points F' on the lower horizontal line. With line E'F' (Fig. 5) as radius, and points E' (Fig. 5) as centers, cut the arcs equal to twice the length FJ, and mark the points F''. Draw the lines F'F'' and E'F''.

Add allowances for seams and joints, lay out the rivet holes, and mark the patterns for fabrication.

How Blower Adjustments Affect Performance

IN ORDER TO HAVE a residential blower operate quietly under all air handling conditions, the outlet air velocity should not exceed 1300 fpm and the wheel tip speed should not exceed 2000 fpm. This was the advice given by Lou Reining, Chicago manufacturer's representative, at a training school for dealers held by Armstrong Heating Supply Co., Chicago.

Mr. Reining also explained the three fundamental laws of fan operation, which are:

- 1) Volume (cfm) varies directly as the speed (rpm).
- 2) Static pressure varies as the square of the rpm.
- 3) Brake horsepower varies as the cube of the rpm.

When blowers are adjusted on the job to give increased volume, the effect on other performance characteristics must be considered. Static pressure, volume and horsepower requirements will be increased as the rpm of the unit is increased.

By using the fundamental fan laws, any changes in performance characteristics can be figured. In giving an example of how calculations are made using the fundamental fan laws, Mr. Reining used a blower with the following characteristics:

1200 cfm at $\frac{3}{8}$ in. static pressure

594 blower rpm

0.137 hp of motor

If the cfm is to be increased from 1200 to 1500, the new blower rpm is figured as follows:

$$594 \times (1500/1200) = 743 \text{ rpm}$$

Since this increase in cfm will also result in an increase in static pressure, it should be figured as follows:

$$\frac{3}{8} \times (743/594)^2 = 0.375 \times 1.56 = 0.59 \text{ in.}$$

These increases will also require increased horsepower to handle the load. The new horsepower requirement is figured as follows:

$$0.137 \times (743/594)^3 = 0.26 \text{ hp}$$

Mr. Reining also explained how to determine the rpm at which blowers operate on the job, how to determine the size pulley required for specific operating conditions, and how to determine the tip speed of the blower wheel.

In answer to a question on bearing wear, he warned against the use of detergent oils for blower application. Another common cause of bearing wear, he pointed out, is the failure to adjust belt tension to provide $\frac{1}{2}$ in. of slack.

The most frequent source of difficulty in blower operation in air conditioning systems is the fact that different speeds are usually required for winter and summer use, he said. It is better to change the motor pulley than the blower pulley in order to change the speed. Changing the blower pulley upsets the entire balance of the blower wheel.

Mr. Reining is Chicago manufacturer's representative for Brundage Company, Connor Engineering Corp. and Automatic Humidifier Company.



To Build, or Not to Build?



This dealer answered "Yes" to this common question and built an attractive new building for his business.

Although it added to operating costs, he found it paid off by boosting sales, making it easier to hire men

THE DECISION of whether or not to build a new building has been faced by many dealers. Robert L. Butler, Butler Heating Co., Dayton, made this decision a few years ago. Now he has moved into an attractive new building, and he's not sorry.

"We have noticed a marked increase in sales now that we have a new showroom located on a main street," Mr. Butler says. "And we can trace a major portion of the increase to the new building. We find that many people say they have seen our new building when we call on them in their homes."

Need More Than Nice Building

Mr. Butler knows, however, that business success depends upon more than a nice building. Before moving, he had built up a good volume from a shop located on

a side street. But the time came when he had to consider further expansion.

"I knew that if I wanted to get bigger and make more money I would need a sales force," Mr. Butler explains. "But you can't expect a man to do a good sales job out of a second class sales room. You need an attractive place for salesmen to headquarter. I feel it's easier to hire salesmen when your building looks like a nice place to work. And it's easier to make a sale in this atmosphere because it makes a strong impression on the buying public."

Of course, it costs money to build a new building and it also costs more to operate. "We have additional janitor expense to keep our new building clean," Mr. Butler points out. "And our electricity and fuel costs are greater. Our offices and showroom are now cooled in the summer and this adds to our expenses. On the other hand, our



SECRETARY'S office is located off of showroom with convenient counter for customers. Over-the-counter sales have grown substantially in new location



GOOD LIGHTING and plenty of space make shop a pleasant place to work and add to efficiency. Trucks can be driven into shop if desired

over-the-counter sales are increasing each month and before long I expect the profit on these sales to cover the additional operating expense."

The first thing that impresses you about Butler company's new location is the large window area which, in effect, makes the entire showroom a display window. At night the showroom is well illuminated with spotlights to make equipment displays stand out. Mr. Butler changes his displays frequently — "so that people passing by do not see the same thing all the time." Display units are mounted on wheels so that they can be moved easily.

The grounds in front of the building have been attractively landscaped. A large electric sign attracts the eyes of motorists approaching from either direction. A metal canopy over the display windows adds an attractive touch and also shelters a sidewalk leading from the parking lot.

Convenient Parking Provided

Parking lots are located on each side of the building. Since the showroom is at one side of the building, the parking lot adjacent to it is convenient for customers, salesmen and visitors. The parking lot on the other side, where the shop is located, provides space for mechanics to park and also leaves room for trucks to make pickups and deliveries.

Mr. Butler had originally planned to locate the office and showroom in the middle of the building with the shop area around it on three sides. This plan was abandoned partly because it would have split up the shop. Also with the showroom located at one side, customers are encouraged to use only one parking lot and leave the other free for truck traffic.

Inside the building there is 800 sq ft of showroom space, 500 sq ft in office area, and 2600 sq ft for the shop. Mr. Butler says that he finds this amount of space adequate because he does not carry a large stock of major units. They are obtained from a local distributor as needed. The company does keep a complete stock of fittings, registers and replacement controls. "Because our distributor does a major portion of our storage," Mr. But-

ler declares, "I believe we could double our business volume without requiring more space."

Trucks Driven into Shop

In addition to two truck height loading platforms, there is a ground level truck entrance into the shop. This permits driving a truck into the shop area to unload special items. Also a fully loaded truck can be left in the shop overnight to be ready to go out the first thing in the morning. A sheet metal rack is located next to this ground level entrance, so that sheets can be slid from the truck directly onto the racks.

The offices and showroom are heated with a gas-fired counterflow furnace which supplies air to a perimeter air distribution system located in the concrete slab floor. The supply air openings are located under the display windows. The shop is heated with two horizontal gas-fired forced air furnaces suspended from the steel ceiling joists.

Butler Heating Co. employs three full time and one part time salesmen, an office girl, a foreman and eleven mechanics. Mr. Butler operates four trucks with two used for service calls and two for installation work.

Mr. Butler believes that a consistent advertising and promotion program pays off, "although we cannot always put our finger on its effects." He uses a variety of media, including newspaper advertising and direct mail.

Most of the company's current work is centered in the modernization market. "Our sales run approximately 80 percent old house and 20 percent new house," said Mr. Butler. "And we do a good bit of residential and small commercial cooling."

Mr. Butler believes in taking an active part in trade association programs as a means of furthering the industry as a whole in addition to benefiting his own interests. He is past president of the Dayton Heating and Air Conditioning Association. He is also vice president of the Ohio State Sheet Metal Contractors Association and serves as a member of the warm air heating and cooling committee of the Sheet Metal and Air Conditioning Contractors National Association.



Industry Gathers in Cleveland To Learn What the Future Holds

CONFERENCE PROGRAM

Wednesday morning, May 1

Presiding: F. J. Nunlist, Jr.

Mueller Climatrol Div., Worthington Corp.

Research and the Future

F. L. Meyer, president, Meyer Furnace Co., president,
NWAHACA

The House of the Future

W. H. Scheick, executive director, Building Research
Institute

The Basis of System Designs of the Future

R. J. Waalkes, application engineer, Hart & Cooley Mfg
Co.

Wednesday afternoon, May 1

Presiding: S. C. Marshall

Minneapolis-Honeywell Regulator Co.

Panel discussion: Problems in Estimating Operating Costs
for Air Conditioning

The Climatic Factor: Speaker to be announced

The Human Factor: R. A. Gonzalez, Director of Tech-
nical Services, Airtemp Div., Chrysler Corp.

The Humidity Problem: Dr. S. C. Hite, head of dept. of
chemical engineering, University of Kentucky

The Problem of Cooling the Upstairs: Prof. S. Konzo,
dept. of mechanical engineering, University of Illinois

Thursday morning, May 2

Presiding: A. B. Newton

The Coleman Co., Inc.

The Use of Forced Attic Ventilation for Ceiling Heat Gain
Control

D. R. Bahnfleth, dept. of mechanical engineering, Uni-
versity of Illinois

Panel discussion: Refrigerant Flow Controls

Capillary Tubes: Speaker to be announced

Thermal Expansion Valves: J. A. Schenk, director of
engineering, Alco Valve Co.

Sound Control in Air Conditioning Systems: Warren
Blazier, Coleman Co., Inc.

Thursday afternoon, May 2

Presiding: W. E. Hood

Unitary Equipment Div., Carrier Corp.

Panel discussion: Air Cleaning—An Essential of Air Con-
ditioning

Viscous Impingement Mechanical Type Air Filters: Dale
O. Bender, Research Products Corp.

Charged Media Air Cleaners: Earl H. Evans, technical
director, Amer Glass Div., American Air Filter Co.

Electrostatic Air Cleaners: George F. Landgraf, vice
president, engineering, Trion, Inc.

Second annual NWAHACA Technical Conference is designed to produce a reliable picture of the future of air conditioning to help dealers recognize and capitalize on trends

"PREPARING FOR the systems of the future by solving the problems of today" is the theme of the second annual Technical Conference of the National Warm Air Heating and Air Conditioning Association May 1-2 to be held at Hotel Cleveland, Cleveland, O.

Second of the annual conferences to be presented by the association, the meeting this year will be broken down into four half-day sessions, each assigned a specific subject for discussion by generally well-known authorities on the issue at hand. The sessions are broken down as follows:

1) *Looking ahead* — present knowledge projected into future research, design and construction methods.

2) *Present day design problems* — consideration of the factors which enter into estimating operating costs for air conditioning.

3) *Performance of air conditioning systems* — discussion of various factors which influence performance.

4) *Air cleaning* — Descriptions of different types of air cleaning devices and discussion of the importance of such devices.

The conference is open to all technical and engineering personnel of the industry. Its purpose is to afford a "market place" for exchanging ideas and knowledge which can be used to predict future trends so dealers will be prepared to meet and take advantage of them. Discussions are limited to technical and prophetic presentations in order to cover each scheduled subject as thoroughly as possible in its allotted time.

The conference is built along the same lines as last year's event, which was well received by the industry.

The registration fee (\$20 per person for association members and \$30 each for non-members) includes two luncheons and a copy of the conference proceedings, including all the presentations and discussions, which will be published following the conference.

For further information and reservations write George Boeddener, Managing Director, National Warm Air Heating and Air Conditioning Association, 640 Engineers Building, Cleveland 14, O.

Room reservations should be made direct to Hotel Cleveland, Cleveland, O.

the quality tells... the quality sells

new **JANITROL**[®] waterless

ADD-ON COOLING SYSTEM



adapts most any warm air furnace
for powerful, efficient summer cooling
... features exclusive PRIDE O' YARD
air-cooled compressor-condenser unit





JANITROL®
gives you
the

Golden Key TO PROFITS

in air conditioning

...with this 7-point program for **SALES**

1

A complete quality line...including the most powerful air-cooled "add-on" unit in the industry!

NEW JANITROL SRA

Powerful, quiet performance with outside temperatures to 125° F.—modern, space-saving design—easy to install—moderate pricing—these are just a few of many reasons you'll make more money with the Janitrol SRA "ADD-ON" Cooling Conditioner!

It's a natural for the lush modernization market. Adapts most any warm air furnace for full central cooling. No floor space needed. Evaporator coil mounts in duct in either upflow or downflow systems. Waterless operation eliminates plumbing, sewage, water supply problems. 2, 3, 4, 5 and 6 HP sizes.

Exclusive "PRIDE O' YARD" Compressor unit, styled by a leading designer, is specially-engineered for operation with outdoor air up to 125° F. And its beautiful, streamlined housing completely outmodes them all—eliminates that undesirable "dog house" look!

No doubt about it! The Golden Key to Profits is yours with this great new Janitrol SRA and all the other models in Janitrol's complete line of air-cooled and water-cooled conditioners. PLUS—2, 3, 4, 5, 6 and 7 in Janitrol's new 7-point program for sales!



JANITROL HEATING AND AIR CONDITIONING DIVISION

Surface Combustion Corporation, Columbus 16, Ohio

Please show me how Janitrol's 7-point program for SALES can give me the GOLDEN KEY TO PROFITS.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

4492 SRA

Fill in and MAIL TODAY!

2 new, low trade net prices

Advanced Janitrol engineering—new automated production methods—volume building sales leadership—all add up to more profits on every sale. This new Janitrol pricing plan lets you move in on competition with top-quality Janitrol products at *really competitive prices!*

3 new dealer stocking plan

As a Janitrol dealer qualified under this new plan, you'll keep your working capital *working*, instead of "freezing" it in inventory. You'll have the inventory you need for prompt deliveries, better service, year 'round.

4 new retail customer finance plan

Makes Janitrol cooling and heating easily available to the six out of ten families who haven't the cash but have the credit... on easy installment terms. No down payment. Up to three years to pay. Finance up to \$3500. No risk or recourse to dealer, no collection problems. Eliminates red tape and delay. Keeps "hot" prospects from cooling off!

5 new local level promotions — to the rich modernization market

A high-impact, sales-producing merchandising program created by Janitrol for your needs, your market, your profit ambitions! Newspaper ads, radio and TV musical announcements, window and in-store displays, color-illuminated outdoor signs—all yours as a qualified Janitrol dealer. And Janitrol sets up the complete program to the last detail, saves your time for selling.

6 new builder promotion package

A complete merchandising program to help you share your share of the new house market. Chock full of tested promotion ideas that give you a running start on competition—let you offer the builder a service that enables him to upgrade his houses with quality Janitrol equipment, appeal to more prospects, *stay competitive!*

7 new select-dealer program

Today, Janitrol recognizes a new era in company-dealer relations. The days of "playing it by ear" are no more. There's a need for continuing close cooperation between both parties—an "open door" for exchange of ideas. The Janitrol Select Dealer Program makes these things possible, and gives you extra benefits besides. Business development counsel, training schools, prizes, vacations, to mention a few. Right now's the time to qualify!

get your *Golden Key* TO PROFITS
with **JANITROL®**

Ask your JANITROL representative for the facts or RUSH THE COUPON TO US!
NO OBLIGATION!

Complete line of gas and oil furnaces, unit heaters, conversion burners, water cooled and air cooled summer conditioners, combination heating-cooling conditioners.



...simplifies perimeter heating, cooling and combination jobs.

MR. ROCCO J. TALIANO of Rocky's Sheet Metal Shop, Lorain, Ohio, finds the Auer "Perfusaire" perimeter register cuts installation time up to 50%! Jobs go in easy . . . without cutting or fitting. Profits are greater because installation takes less time . . . less labor.

Perfusaire is "ready-to-install"—only 18" long but with the capacity of 4 to 8 ft. units, it has a pre-cut duct opening $2\frac{1}{4} \times 12$ " with convenient knock-outs to accommodate $2\frac{1}{4} \times 14$ " ducts.

It installs quickly and easily in or against plastered walls . . . inside or outside the baseboard . . . in new or old construction . . . it is ideal for uneven wall installations—Perfusaire fits snugly against wall surfaces without unsightly gaps . . . eliminates the need for filler strips or molding.

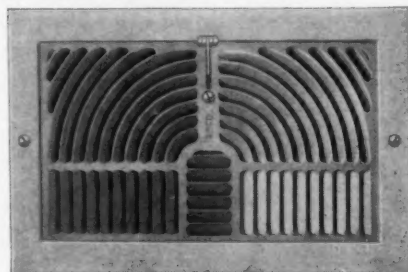
Floor Type

Where floor type perimeter registers are required, or for installation in narrow or "hard-to-reach" spaces such as stair risers, Auer D.P.R. perimeter diffusers are available in standard sizes to meet these requirements.

For complete details on "Perfusaire" and other registers and grilles "For Every Heating and Air-Conditioning Need", write to:



Clip Fasteners speed attaching $2\frac{1}{4} \times 12$ " or $2\frac{1}{4} \times 14$ " duct without cutting the diffuser . . . without screwing or bolting.



Auer "Fanaire" for "Perfect Pattern" heating and cooling. Can be used for high or low side-wall installation or as a ceiling outlet.



Auer D.P.R. Floor Register for perimeter floor installations. Available in $2\frac{1}{2} \times 14$ ", 4" and 6" widths, 10", 12" and 14" lengths.



THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"

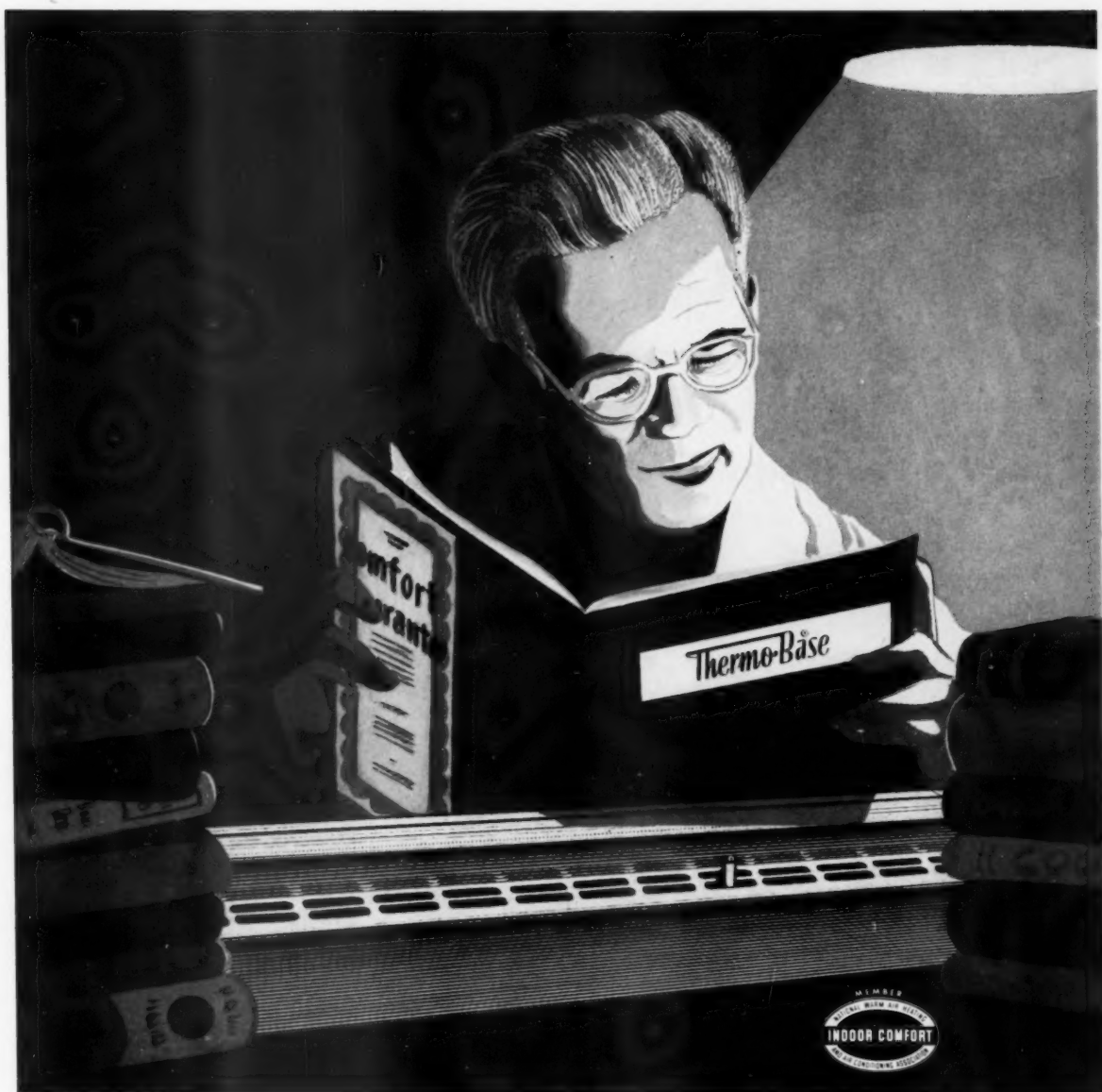
6602 CLEMENT AVENUE • CLEVELAND 5, OHIO



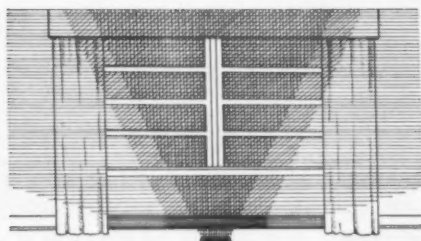
Another
WILLIAMSON
FIRST!
For Heating and Cooling

*Seal-Tite**

THE WILLIAMSON COMPANY • 3310J-4 MADISON ROAD • CINCINNATI 9, OHIO *TRADEMARK



lifelong search succeeds



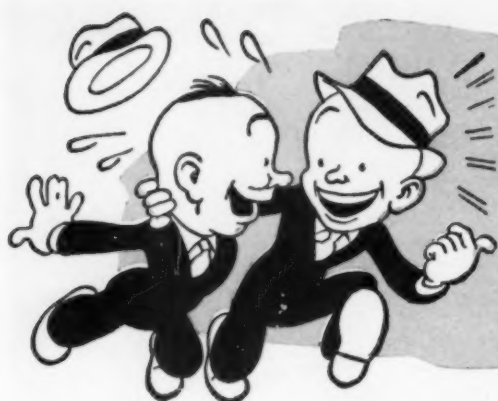
PATTERN of PROGRESS
Perimeter Air Distribution

- Floor Diffuser ■ Short Baseboard Diffuser
- ▨ Extended Thermo-Base Baseboard Distributor

When painting a barn, buying insurance, fertilizing a crop, roofing a house or paving a road, *complete coverage* is the thing. This, we've always known. These days, we know that when *distributing air* for heating and cooling, there is a *major* consideration in achieving real comfort: *complete coverage* of exposed walls. This gentleman, rich in experience, moved cautiously when *first* he read the "extravagant" claims in his Thermo-Base catalog. *Today*, he simply considers that the Thermo-Base system of air distribution has made his lifelong search a complete success.

Thermo-Base®

a product of GERWIN INDUSTRIES, INC., Michigan City, Ind.



Idea Exchange for Dealers, Contractors

Gift Portfolio Heralds Shop's Anniversary

... and provides constant reminder for prospects

A 100 YEAR ANNIVERSARY is an important milestone for a company. Harold Lyle, general manager, Chas. Wuichet Co., Dayton sheet metal contractor, believes not only that the occasion should be celebrated by officers and employees of the company but also that customers should be invited to share in observing the event. Mr. Lyle decided to send each of his customers, prospects and architects a present to tell them about the company's first century in business. He contacted several gift and specialty item salesmen for ideas. After examining over two dozen items, he decided on a 15 X 10½ in. zippered plastic underarm carrying case. This item, he felt, in addition to being attractive and practical, was also something that would stand out because it was quite different from the usual business gift.

Cases Reflect Quality

The cases are brown, and in the lower left hand corner, stenciled in ¼ in. script style gold letters are the words "100th Anniversary, 1857-1957." Below this is the company name, also in gold but printed in block style letters. An order was placed for 1000 cases; in this quantity, the cost amounted to about \$1 per case.

Within two weeks after the cases

were mailed, Mr. Lyle had received over 200 letters and telephone calls from people who had received the souvenir, expressing their appreciation for being remembered and thanking him for the memento.

Old Records Provide Surprises

It is interesting to look back through the company files to see how the sheet metal contracting industry has changed since 1857.

Among the records is a month-end statement for November 1881 to a customer that includes many of the services offered today. There is, however, a marked difference in the charges listed. Galvanized sheet metal used on the job sold for 12½ cents a pound. Four inch gutters were 12½ cents a foot as was 4 in. conductor pipe. Goosenecks were sold for 15 cents each.

Wages have made the greatest rise since 1881. The retail price for labor was charged at 27 cents an hour. The formula for determining labor charges at that time is not known, but assuming that it was marked up 50 percent (as contrasted with today's 100 percent) this would mean a wage rate of about 18 cents an hour for workmen as compared with the current rate of \$3.35 paid sheet metal workers in the Dayton area.

According to the list of services



DISPLAYING THE underarm portfolio mailed to 1000 customers, prospects and architects is Harold Lyle who is celebrating his company's 100th anniversary

shown at the top of the monthly statement, the Chas. Wuichet Co. offered: ornamental work; window and door copings, galvanized cornices, slate and metal roofing, and "the best gas machine in the world."

By commemorating its 100th anniversary with a lasting souvenir, the firm reminds old customers of the reliable service they have received through the many years. Also, new prospects and architects will think about the company each time they use the underarm portfolio.

IMMEDIATE DELIVERY
FROM STOCK
USS GALVANIZED SHEETS

from 10 to 30 G.S.C.
in any width and length



If you work with galvanized sheets, you know the superior workmanship you can turn out with USS Galvanized Sheets. For here is a top-quality sheet with a tight, uniform coating of zinc that resists cracking and flaking under severe forming operations. You can lock-form, bend, roll, cut, stamp, solder or spot weld them without damaging their smooth finish. As a result, your products will stand up in all kinds of weather and retain their clean appearance many years longer. USS Galvanized Sheets are always uniform in ductility, flatness and surface finish.

When your orders call for cutting or shearing, you can be sure that our modern equipment and experienced men will keep tolerances close and scrap loss to a minimum. Every shipment will arrive in good, ready-to-use condition. Your nearest U. S. STEEL SUPPLY Warehouse is now stocked with a complete line of these famous sheets and can give you immediate delivery . . . anywhere you say.

U. S. STEEL SUPPLY
DIVISION

P. O. Box 1099, Chicago 90, Ill.



General Offices.

208 S. LaSalle Street, Chicago 4, Ill.

UNITED STATES STEEL

NOW! FULL POWER **with Air Conditioning you can**

The Finest...Most Advanced Comfort Features!

Priced to SELL!

Volume Profits!

Easy to INSTALL!



NEW DYNATHERMIC COOLING ONLY BY TIMKEN-SCAIFE

Here's the new SCAIFAIRE Self-Contained whole home air conditioning that opens the door to new, **FULL POWER** sales and profits for you. Big extra profits, because it's priced for volume sales. Millions of home owners can now afford the long desired luxury of air conditioning without the luxury price.

FAST MOVING SIZES to fit the large volume needs of most single family homes. These self-contained units are air cooled, completely factory assembled and wired, ready to operate and carry a 5 year guarantee.

It's ideal for the builders market and leads the way to large volume heating sales too, because it gives you the advantages of offering a complete "Heat-Cool" package.

HERE'S WHY IT'S BEST FOR YOU!

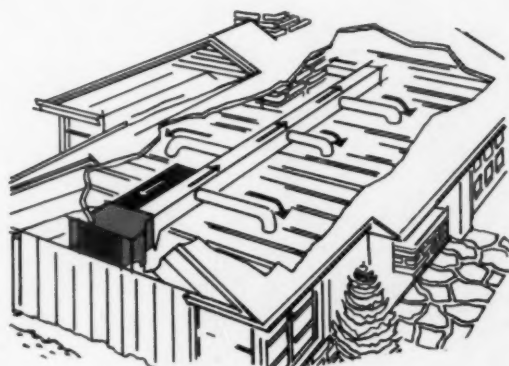
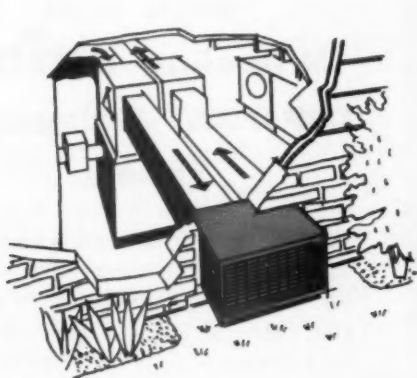
- **Easy to Sell**
- **Easy to Install**
- **Easy to Service**
- **Meets code requirements**
- **Ready to operate**
- **Volume sales**
- **Sales and Merchandising Aids**
- **Profitable fast turnover**

GET ABOARD NOW FOR YOUR BIGGEST SEASON EVER WITH THE FAST-SELLING SCAIFAIRE LINE . . .

SALES AND PROFITS

sell installed for as little as \$675

Powerful...New Values That Make The Sale!



INSTALLED ANYWHERE

New SCAIFAIRE Self-Contained air conditioners can be installed practically anywhere . . . in the basement, attic, utility room, crawl space or even outside the house. Installation is so simple because it comes from the factory ready to operate. Just hook it into the ducts of a warm air heating system or it may utilize its own ductwork.

SALES FEATURES

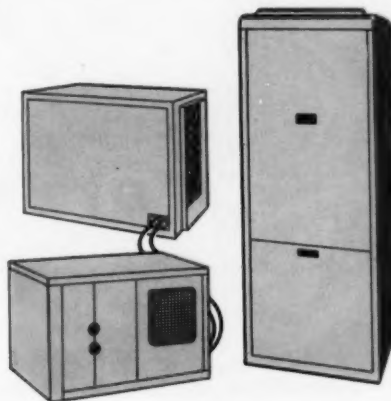
- **New Low Price**
- **Self-Contained**
- **Installed Anywhere**
- **Low Cost Installation**
- **Compact—33 $\frac{1}{4}$ " x 25 $\frac{1}{4}$ " x 16 $\frac{1}{2}$ "**
- **Popular range of sizes**
- **Five year guarantee**
- **No running water required**

DELUXE MODELS, TOO!

COMPLETE LINE of SCAIFAIRE for 1957 also includes new deluxe models of both air and water cooled types in a range of sizes to fit any home requirements. These units are all designed and fashion-styled as companion pieces for Timken-Scaife heating units.



Write today.





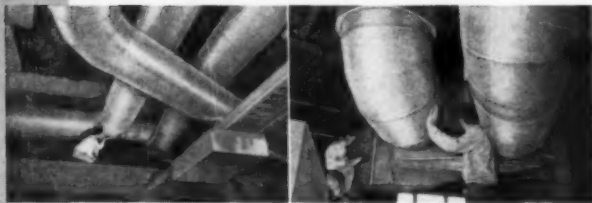
As in the
**New Orleans
City Hall**

New Orleans, La.

get longer-lasting
ducts with
Wheeling SOFTITE®
**COP-R-LOY® Galvanized
Sheets**

28 large central air conditioning units and 1,122 small air handling units were needed for the new \$7½ million New Orleans City Hall. Mindful that the ducts should be as long-lasting and trouble-free as possible, Wheeling SOFTITE Cop-R-Loy Galvanized Sheets were used. These are the same type of copper-bearing sheets proved to *last up to 33 times longer!*

For full details, contact the Wheeling warehouse or sales office nearest you.



52 vertical ducts distribute 100,000 cfm of fresh air to 1,122 perimeter units—all Wheeling's new SOFTITE Cop-R-Loy Galvanized Sheets.

Wheeling SOFTITE Cop-R-Loy Galvanized Sheets were used for the 1,600 horizontal air distribution sections plus 62 vertical shafts.



WHEELING CORRUGATING COMPANY
WHEELING, W. VA.
IT'S WHEELING STEEL

Warehouses: Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis. **Sales Offices:** Atlanta, Houston.

Court Rulings Differ on Insecurity Clauses

Clauses in conditional sales contracts providing for repossession when seller deems his security in danger have been given three interpretations based on how danger is determined

INSECURITY CLAUSES are commonly included in conditional sales contracts to provide for repossession of the property sold in case the seller considers himself insecure or in danger of not collecting full payment under the conditions of the contract.

The principal legal question involved in such clauses concerns the manner in which it is to be decided whether or not the seller's security is sufficiently endangered to justify repossession. Three different rules have been adopted by various courts which in different states govern the seller's right to act under clauses of this character.

Court Outlines Rules

In deciding a case involving such a security clause a court in one of the southern states outlined these three different rules. The court said:

"The so-called insecurity clauses have been interpreted in such manner as to divide the decisions of the various courts into three classes: 1) those which hold that the mortgagee is the sole judge of the issue whether this security has become endangered and that no proof is needed beyond the fact that he has actually deemed himself unsafe and has proceeded upon that belief, 2) those which hold that the mortgagee may proceed upon such circumstances of presently apparent danger as would furnish probable cause for the belief that the security is unsafe when viewed in good faith by a man of reasonable prudence, and 3) those which hold that the danger must rest in a fact or facts of actual existence, disregarding the appearances, however indi-

cative of probable cause the appearances may be."

The above case involved a conditional sales contract which provided, "If for any reason seller should deem itself insecure, seller or its representative may take possession of said property wherever it may be found and may enter in premises therefore without notice or demand to purchaser and without legal process and purchaser waives all claims for damages caused thereby."

Before the first payment was due the seller acted under this clause and retook possession of the property. No force was used nor was there any disturbance, but the buyer immediately sued for damages. When the jury rendered a verdict for the buyer, the seller appealed and the judgment was reversed by the higher court.

The buyer contended in this instance that unless these goods were surrendered by him of his own volition, the seller's retaking of the property was a wrong for which he was entitled to damages. However, the higher court said, "If this were permissible, the clause (provision for retaking) had as well be omitted from the contract.

"Under it the mortgagee has the right to take possession insofar as concerns the manner thereof, over the objections of the mortgagor, so long as openly done at a proper place and without force or violence or any threat thereof and when the circumstances are such as to create no apprehension of any violence on the part of the mortgagor or other person from whom the possession is being taken."

In regard to the use of force in making a repossession the court referred to an earlier decision in that state in which it had been said, "The authorities are in substantial agreement that the right to take the property from the possession of the other party does not justify the use of force to take it. It must be done without force or violence and if possession cannot be so obtained, then resort must be had to the processes of the court."

Different Ruling Made

Another incident of this sort before the courts of a midwestern state emphasizes the different ruling providing that the dealer may claim his property under a clause of this character when and only when he can honestly and in good faith assert that his security is imperiled.

Here an arbitrary seizure had been made by the seller, which he considered to be his right under such an insecurity clause in the contract. The judgment was made against him awarding the buyer damages. The court said,

"The true rule, it seems to us, should be and is that the mortgagee has the right to determine for himself whether he is unsafe in his security subject to the limitation upon his right that his judgment must be exercised in good faith and upon reasonable grounds or probable cause.

"We do not go to the extent of saying that he must prove there was actual danger but we think he should be required to show that there was apparent danger, or that he had good reason to believe there were such grounds for such belief that a reasonable man might in good faith act upon."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



You mean that
GREAT WESTERN GALVANIZED SHEETS
will not flake, peel, crack
or chip no matter how
we form them?

**We mean
 just that!**

If you want galvanized sheets that form *easily* into *any* shape . . . no matter how tough . . . without *flaking, chipping, cracking or peeling* . . . depend on GREAT WESTERN.

Galvanized by the most modern continuous process these quality sheets have the tightest zinc coating ever.

The sparkling bright finish reflects the permanence and inner quality that mean good looking jobs, lasting satisfaction and enduring protection against corrosion.

As for delivery — *and we mean fast delivery* — call GREAT WESTERN STEEL today. We carry large stocks of sheets and coils in a wide range of gauges, widths and lengths for immediate shipment.



**GREAT WESTERN
 STEEL COMPANY**

ESTABLISHED 1918

Extra Values

make the difference in
 Galvanized Sheet Steel Service
 from GREAT WESTERN STEEL.

Call Great Western: HEmlock 4-5800

General Office and Plant:

2300 W. 58th St., Chicago 36, HE 4-5800

Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092

REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES

Here's Why You'll Enjoy Selling This All-New Century Gas Series

COSTS LESS!

These deluxe automatic furnaces cost less than many open-cabinet, stripped down units. Their clean, functional design eliminates costly, unnecessary bulk. This all-new series has not only been tested but proven during 5½ years of development and home use. It's the most complete, competitively priced gas heating line on the market today!



Basement model shown with matching return air cabinet.

QUIET, ECONOMICAL OPERATION



Front View



Back View

Edge welded heat exchanger is not solidly tied down to jacket but floats on Fiberglass gaskets to eliminate expansion and contraction noises. Carries free 10 year warranty. The properly baffled air stream provides even temperature distribution. Fiberglass insulation keeps heat loss at a minimum... aluminum foil facing reflects heat inward.

WIDE RANGE OF SIZES... AND COOLING, TOO!

Your choice of basement, utility and counterflow models from 80,000 through 160,000 BTU input. A. G. A. approved for natural, manufactured and mixed gases. Motors and blowers are oversized to assure smooth operation under cooling loads. Matching integrated summer cooling systems are available.



Utility model.
Filter racks either side or bottom.

EASY INSTALLATION AND SERVICE



Counterflow with panels removed.
Filters can be changed without removing stack.

This slim, rigid furnace is fully enclosed. Draft diverter and factory-tested controls are built-in. Pilot and thermo-couple are bolted in correct position. Burner holds efficient, short blue flame indefinitely. Only the front panels need to be lifted out for servicing all components.

YOUR CUSTOMERS CAN COUNT ON CENTURY FOR COMFORT!

Every Century heating or cooling system is tested under typical operating conditions in Century's modern laboratories. You can be sure each will do the job for which it is rated.

HEATING (Gas or Oil)

- Horizontals
- Lo-Boys
- Hi-Boys
- Counterflows
- Conversions

COOLING

- 2, 3 and 5 H.P. Remote Systems
- 2 and 3 H.P. Store Cooler
- 2 and 3½ H.P. Attic-Type "Coolpak"

Remember, Century backs you with national advertising, local "Co-op" and field sales assistance.

Century

CEAR RAPIDS IOWA

ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA 210-B

Please send me information on the complete line

Company.....
Attention.....
Address.....

WHAT THE ASSOCIATIONS ARE DOING



PAST PRESIDENT'S plaque is presented to Dion Mannen (l.) by Don Dieterle



PROGRAM COMMITTEE looks at slides used in talk by Lawrence E. Gichner at Cleveland meeting. Shown are (l to r) Roger Haag, Charles Pressler, Mr. Gichner, Jack Mannen



NEW PRESIDENT Wm. C. Lumm (l.) receives gavel from past president Mannen

How to Do Jobs Faster and Easier

... was learned by dealers and
contractors attending the 43rd annual convention
of the Ohio Sheet Metal Contractors' Association

HOW TO DO A JOB easier and better was the theme of the 43rd annual convention of the Ohio Sheet Metal Contractors' Association held Feb. 25-27 in Cleveland. Subjects covered dealt with the advantages to be gained by using recently developed tools for special purposes, new uses for long established standard tools and the development of special shop equipment to conserve manpower requirements.

Installation practices which solve cooling problems of multistory and slab floor houses with wet heat systems, certified heating programs, and local association activities were also covered. Area advisors reported on trade practices being followed in various sections of the state.

William C. Lumm, Toledo, was elected president for 1957. Three vice presidents elected are Harry G. Fahnle,

Cincinnati; Robert L. Butler, Dayton; and Adam J. Pataky, Columbus. The office of secretary was consolidated with that of treasurer with the officer holding the post to be known as the executive secretary-treasurer. Don Dieterle, Toledo, was elected to fill this position. New directors elected are Robert Spragg, Columbus; Harry Liberman, Akron; Ray Quiggin, Cleveland; and Meyer Jacobson, Cincinnati. The new directors will serve three years. Other members of the board of directors in addition to the officers are Lee Jones, Columbus; Douglas Winning, Cleveland; Lee Faunce, Toledo; and Harold Lyle, Dayton.

The City of Toledo was selected as the site for the 1958 convention. It was decided to hold the meeting at Hotel Commodore Perry on March 3-4.

(Continued on page 122)



SHEET METAL forum included contractors from all over state: (l to r) Harry Fahnle, Wm. C. Lumm, Robert Spragg, Harold Lyle, Harry Fravel, Douglas Winning



BENEFITS of modern shop equipment were covered by this panel of manufacturers: (l to r) Joseph R. Yoch, S. Schrager, Edward Bill and Francis L. Ashworth

Another new business builder from BORG-WARNER

the nation's
most complete
HOME COMFORT
CENTER



Another example of B-W research and planning for you!

Just check those measurements! 26½ inches wide, 50½ inches deep, 58½ inches high. Hardly any bigger than a lot of low-capacity furnaces you've seen and maybe even installed. Did you ever think that anyone could design a 135,000 Btu/h gas-fired low-boy, a 3-ton air conditioning A coil, a complete electronic air cleaner, all humidification and dehumidification controls to fit into a space that small? Borg-Warner did it, and what's more its just one of a whole new series being made available to wide awake Borg-Warner dealers. Ultimately, you'll be able to have the same complete, compact Home Comfort Center in 3 different gas-fired furnace sizes, in two oil-fired furnace sizes, with either air or water cooled air conditioning, plus B-W's famous Electronic Air Cleaner.

Constant research and design improvement such as this are just one of the things building business for Borg-Warner Airline dealers. You've already heard about their new, consumer-priced electronic air cleaner; about the big Business Building Bonus; about the most scientific air distribution system available; and about the complete line of quality products that help make money faster.



AIRLINE by BORG-WARNER — The Guaranteed Business Builder

REMEMBER— Only Airline Offers You . . .

1. Borg-Warner Airline assures you a 15% sales increase in '57.
2. Borg-Warner Airline provides every franchised dealer with all the selling tools needed. We outline on a day-to-day basis how to use them best.
3. Borg-Warner Airline offers you a complete line of priced-right built-right units. There are none better.
4. The Vast Research Facilities of Borg-Warner are constantly applied to keep Airline ahead of the field. 1957 promises the development of many outstanding units.
5. B-W stands for quality in your customers' minds. The Airline sales staff will help you cash in on that prestige.

If you haven't heard about the wonders of Borg-Warner and want to know more, write:

Borg-Warner Airline Sales Department

760 E. Vine St., Kalamazoo, Michigan

**NEW,
COMPACT**



48-FRAME

**Fractional HP
MOTORS**

INDUSTRIAL QUALITY for all applications

**take less space...
weigh less...
perform better!**

ROTOR

Rotor bars, end rings, and fans integrally pressure-cast of virgin aluminum. Rotors dynamically balanced to very close limits; meet strict quiet-motor requirements.

INSULATION

Heavy vinyl acetal insulated wire, tough mechanically, thermally, and dielectrically, has excellent moisture resistance, highest uniformity. Stator core slots lined with coils of DuPont Mylar bonded to all-rag electrical paper.

BEARINGS

Sleeve: pressed into place in bracket which has been bored true in single set-up operation. Finish boring operation assures proper bearing surface and concentricity. Ball: single-shielded, precision fitted in brackets.

LUBRICATION

Sleeve bearing type: wool yarn wicking provides constant oil supply to oil groove. Inner sump cup retains excess oil which is tapped by felt wicks extending into the wool yarn. Ball bearing type: standard construction permits re-greasing.

GOVERNOR and SWITCH

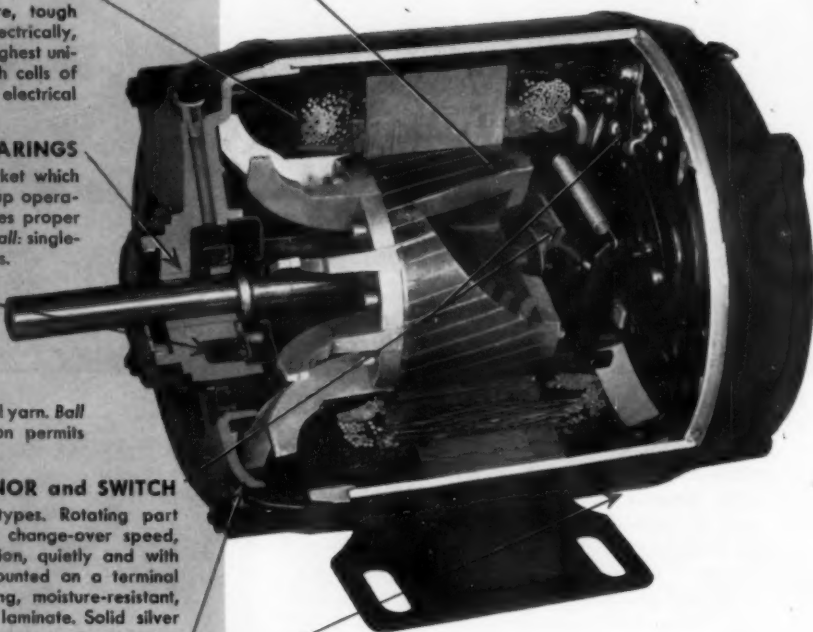
For capacitor and split phase types. Rotating part securely press-fitted to shaft. At change-over speed, governor operates with snap action, quietly and with no flutter. Stationary switch is mounted on a terminal plate; plate is GLASTIC, a strong, moisture-resistant, arc-resistant glass-filled polyester laminate. Solid silver contacts are used.

BEARING BRACKETS

Pressure cast in special aluminum casting alloy. Stress relieved for permanent stability. Strong internal ribbing for strength, and smooth outside surface.

FRAME

Stator frame rings formed of one-piece heavy rolled steel. No frame openings; windings fully protected. Rabbet fit faced and bored true to provide proper alignment of bracket and a concentric air gap. Heavy formed steel feet welded to frame ring.



Century Industrial Quality means design that does not compromise dependability to gain slight cost advantages... sturdy construction provides the stamina which assures continuous operation. 48-Frame Motors now available from 1/20 to 1/3 HP... Performance-Rated to your needs... with weight savings up to one-third!

Test one of these motors for yourself. Call or write your nearby Century District Sales Office or Authorized Distributor. Send for new bulletin 1-1P1.

Performance-Rated[®] MOTORS
1/20 to 400 HP



CENTURY ELECTRIC COMPANY

Why Perfection decided to sell only through independent wholesalers

**"A strong wholesaler can give
you 'on the spot' personal help—that will
increase your sales and profits."**

C. W. MILLSOM, *Vice President Sales*
Perfection Industries



Now Perfection wholesalers carry your stock for you. It's a *complete* stock . . . deliveries are *immediate*. No lost sales because your customer needs a specific item *today*—your Perfection wholesaler has it for you.

Now Perfection wholesalers solve your inventory problem. You stock only fast moving items . . . he carries a complete inventory of products and parts. Your money isn't tied up.

Now you can have a product for any installation because your Perfection wholesaler carries a *complete* line—the line with REGULAIRE and FULL CAPACITY—*exclusive* features with Perfection.

Now you can have technical assistance from your Perfection wholesaler—he's right there to help you solve any and all heating and air conditioning problems.

Now your Perfection wholesaler carries products priced for all your customers . . . the same prices you used to pay direct. And you still get personal wholesaler service.

Now Perfection wholesalers will have a complete dealer advertising and promotional program to tie-in with Perfection's national advertising—to strengthen or build your program.

Now you know why you'll be wise if you buy from the Perfection wholesaler near you.

THERE ARE A FEW TERRITORIES STILL OPEN . . . write, wire or phone Perfection today!

△ Perfection® DIVISION OF HUPP Corporation

AUTOMATIC COMFORT

HEATING/COOLING

Perfection Industries • Cleveland 10, Ohio

WITH THE ASSOCIATIONS

(Continued from page 118)



NEW OFFICERS and directors are: (l to r, seated) Adam Pakaty, Robert Butler, Don Dieterle, Wm. C. Lumm, Harry Fahle; (standing) Dion Mannen, Douglas Winning, Harold Lyle, Harry Liberman, Lee Jones and Lee Faunce

A panel of sheet metal fabricating equipment manufacturers described many of the new pieces of equipment being used by sheet metal contractors today and pointed out how new machines, properly used, could result in better work at lower fabricating costs. Francis L. Ashworth, Peck Stow and Wilcox Co., told how the tax schedule made it practical for sheet metal fabricators to purchase new equipment and to depreciate it at the fastest permissible rate. He mentioned examples where poor machine tolerances resulted in excessive scrap costs and high fabricating expense.

The economy of special purpose tools was outlined by Edward Bill, Lockformer Co., who described the development of special tools and how they could be adapted to sheet metal shop procedures to turn out large quantities of duplicated parts faster and easier than when standard tools are used. Supporting this point was S. Schrager, Standard Power Groove Machine Corp., who said that over 90 percent of the sheet metal shops of New York City are using power operated groovers today and yet there were none in the city four years ago. He estimated that fabricating labor costs were reduced almost 50 percent on jobs where power seamers were used. He pointed out also that shop noise levels were reduced considerably because hand mallet work was no longer required.

Find New Uses for Machines

Carrying these points a step further, Joseph R. Yoch, Engel Sheet Metal Equipment, Inc., told how a study of shop methods could point out many weaknesses in fabricating procedures. He suggested that contractors and dealers who now use special purpose equipment study ways to put the machines to uses other than those originally recommended. The seminar was moderated by Harry Fravel, Canton contractor, who queried contractors as to the percentage of scrap being discarded in their shops. It was found that some contractors were able to



HEATING AND COOLING forum brought together dealers with wide experience: (l to r) Eugene Montean, Wm. E. Favret, Emil Voegeli, Robert Butler, Carl Williams, H. E. Rigby, Al Mintz and Ray Quiggin gave ideas to dealers at Ohio convention

hold their wastage to 11 percent, but some estimated their scrap to be as high as 23 percent. The average was about 17 percent.

How contractors throughout the country are attempting to solve the problems of material and equipment control was described by Lawrence E. Gichner, Washington, D. C. sheet metal contractor. Mr. Gichner used a projector to reproduce 150 photographs of on-the-job operations. Each of the photographs was described in detail and covered such operations as location of equipment for efficient operation, safety measures, better lighting arrangements, stock control and new uses for old equipment.

Another panel, made up of association members, related experiences with heating and cooling installation and service problems. Members of the panel were Robert L. Butler, Dayton, moderator; Eugene Muntean, Canton; William E. Favret, Columbus; Emil Voegeli, Toledo; Carl P. Williams, Akron; H. E. Rigby, Dayton; Al Mintz, Cleveland; and Ray Quiggin, Cleveland. This panel suggested that dealers install more return grilles, recommending that there be one return opening for every bedroom, with two or more return openings for large living and recreation rooms. The panel also endorsed the recommendation that a warm air register be installed under every window.

A third panel consisting of Robert Spragg as moderator and Harold Lyle, William C. Lumm, Harry Fravel, Harry Fahle and Douglas Winning covered some of the employee problems of the sheet metal contractor. This group discussed apprenticeship training, vacation pay, overtime rates, length of contracts in use by different groups, welfare fund handling, surety bonds, travel pay, workmanship quality, bid shopping practices of general contractors, subcontracting procedures and work prospects for the coming year.

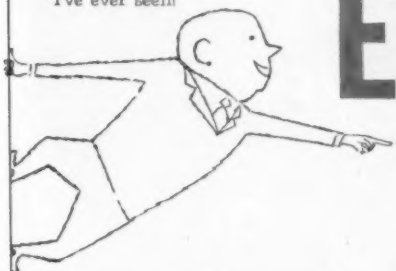
In the business session, the membership adopted a rewritten and adjusted set of by-laws.

(More association news on page 126)

Flame's-eye view of the outstanding

CONCO HEAT EXCHANGER

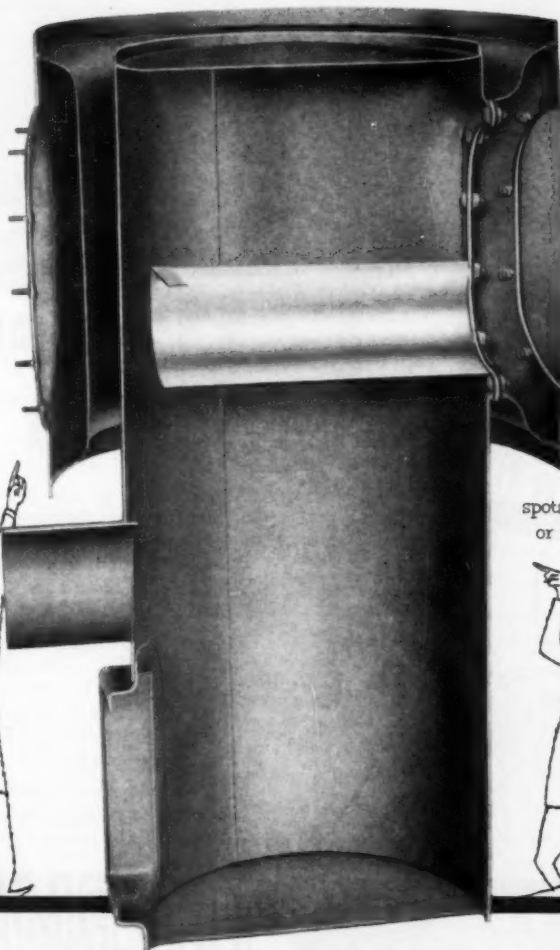
"Most perfect welds
I've ever seen!"



"Single-union suspension
means stress-free expansion
and contraction!"



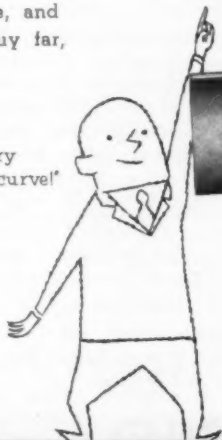
Look familiar? You bet! The Conco heat exchanger uses the time-proved drum and wrap-around radiator principle — newly engineered for even higher efficiency, even longer life, even quieter operation. Look at all the features that are new, then write for our catalog covering the Conco Furnace line. Learn why Conco dealers say, "We haven't found finer heating equipment available at any price, and the same price can buy far, far less value."



"Look! Every
corner's a curve!"



"Quiet as a mouse!"



"No hot
or cold
spots to burn
or rust out!"



CONCO ENGINEERING WORKS

Division of H. D. Conkey & Company, Mendota, Illinois

Manufacturers of a complete line of quality heating and air conditioning equipment

Affiliates:

Conco Building Products, Inc. - Brick, Tile, Stone • Conco Material Handling Div. - Cranes, Hoists



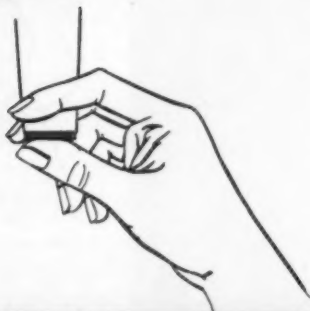
SL-200

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EVER!**

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**COMBINATION REGULATOR
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SAFE LIGHTING FEATURE**

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First again in gas control development, Thermac offers appliance manufacturers the most outstanding advancement in gas pressure regulators and safety control devices on the market today. The new "SL" Series shown is identical to the widely accepted Thermac "SR" Combination Regulator and Thermo-Electric Pilot, except that a safe lighting feature operated by a red push button has been added.

Appliance Manufacturers are invited to request samples of this new Thermac "SL" Series with the safe lighting feature. The simplicity of this control is extremely important, particularly to the customer in the field. Easy to use, easy to understand — no mystifying gadgets to complicate usage. Like all Thermac controls, the "SL" is positive in action — rugged and fool-proof in construction.

Write today for capacities, prices and SAMPLES of the "SL" Series. Available now in $\frac{1}{2}$ " and $\frac{3}{4}$ " sizes. Let us demonstrate to you Thermac's superiority of product and service.

**SEND FOR
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SIZES AVAILABLE TO HANDLE APPLIANCES
UP THROUGH 250,000 BTU/HR.

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24 years experience
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Another Norman-Engineered First Opens Profitable New Markets For You!

Norman ThreeSixty®

Forced Convection Overhead Gas Heater

- ★ Sealed Combustion System
- ★ Exclusive Electric Ignition
- ★ Forced Exhaust
- ★ 100% Outside Air For Combustion

Here's how the Norman Three-Sixty assures constant air circulation without stratification: An intake fan draws air from the floor up into the bottom of the unit where the air is heated and distributed outward and slightly downward in a full 360° radius to form an umbrella of comfortable warmth.

Consider the advantages of the four Three-Sixty features listed above, and you'll see why this smartly styled circular overhead gas heater opens up new profit possibilities.

The new Norman Three-Sixty has dozens of other design, performance and safety features to put it in a class by itself in unit heaters.

Mail the coupon today for complete details on the Three-Sixty and other profitable items in the Norman line of quality gas-fired heating equipment.



Norman Southerner horizontal forced air gas furnace. A.G.A. approved as central forced-air furnace or unit heater. Also approved for attic installation. Backed by 10 year warranty.

Norman Gas Conversion Burners for residential, commercial and industrial applications are available in sizes from 50,000 to 2,000,000 B.T.U.

A.G.A. Listed



Norman®

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NORMAN PRODUCTS CO.
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Please send literature and information on the Norman quality line of gas-fired heating equipment, including the all-new Three-Sixty.

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DISCUSSING some of the finer points of engineering a cooling system are (l to r) Al Olsen, Norman Gohlke, Tony Demshar, Harold Immekus



OFFICERS for 1957: (l to r, seated) Al Olsen, Del Ihde, Vince Kercher, Roland Biersach, Carl Behrnd, Robert Schmieder; (standing) Ralph Hovland, Martin Petersen, Frank Kramer, Ben Brozek, Tony Demshar, Ted Kuck

Proper Estimating Can Assure Profit

... dealer-contractors are told at the 41st annual convention of the Wisconsin Sheet Metal Contractors

HOW TO ESTIMATE a job to assure a profit in line with the risks involved was one of the important subjects covered at the 41st annual convention of the Sheet Metal Contractors' Association of Wisconsin in Milwaukee, March 11-13. Dealer-contractor members of the panel, who outlined procedures they use in their businesses, were Walter Marth, Milwaukee; Ted Kuck, Sheboygan, and Ralph Hovland, Eau Claire. The panel was moderated by Richard E. Walsh, St. Paul, Minn., sheet metal contractor.

William A. Kuechenberg, president, Sheet Metal and Air Conditioning Contractors' National Association, outlined national level programs and pointed out how they tie in with the activities of local and state associations. The problems of sheet metal contractors engaged in fab-

ricating specialty items were discussed by Roland H. Biersach, Milwaukee, and William Mansfield, Madison. Industrial sheet metal problems, past, present and future, were outlined by Robert Holming, Milwaukee.

Practical ideas used effectively by sheet metal contractors throughout the country were described by Lawrence E. Gichner, Washington, D. C., sheet metal contractor. The revised ventilating code for Wisconsin was described by L. C. Fenlon, Industrial Commission advisor. Norman M. Gohlke, Auer Steel & Furnace Supply Co., reviewed warm air heating and air conditioning trends.

New officers elected include: Roland Biersach, Milwaukee, president; Carl Behrnd, Madison, first vice presi-

(Continued on page 130)



UNIFORM record keeping systems are proposed by Richard E. Walsh (right). Other panel members are (l to r) Ralph Hovland, Walter Marth and Ted Kuck



INDUSTRIAL sheet metal problems are reviewed after close of meeting by (l to r) J. E. Harbridge, Vincent Kercher, William Born, Leo Muza

VICTOR

Cooling

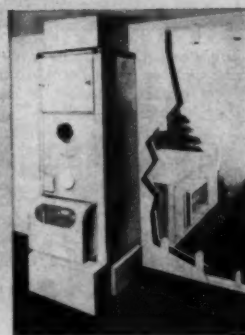
**... get ahead of the parade
in central Cooling!**

Pyramiding sales of central cooling equipment during the past year prove that complete summer home cooling is today's huge profit market! VICTOR dealers, in addition to selling famous heating equipment, now have also a most complete and adaptable line of exclusive central cooling. Bring your business up-to-date with an exclusive franchise to sell the complete VICTORAIRE Central Cooling line. Maybe you can't always out-bid your competition . . . but with the right kind of quality cooling equipment you can OUT-SELL him!

For example: VICTORAIRE cooling has factory charged tubing which saves installation time, costs and insures absolutely safe and correct installation for perfect operation. Example: Evaporator cabinets may be placed in any forced air heating system, plenum, duct or under counter-flow *NOW* for money saving installation of air conditioning later. **INSURE MORE BUSINESS** with VICTORAIRE's "Future Business Plan." **MAIL COUPON TO-DAY. IT COSTS NOTHING TO FIND OUT!**



**Water or Air Cooled
Companion Model**



**Counter-flow Air
Cooled Model**



**Duct Evaporator Air Cooled Model,
(Plenum models also available.)**

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FURNACE CO.**

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INDIANAPOLIS 7, INDIANA

Quality Equipment Since 1890

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GENTLEMEN: Please send complete details of the exclusive VICTOR heating and cooling franchise for bigger profits in '57.

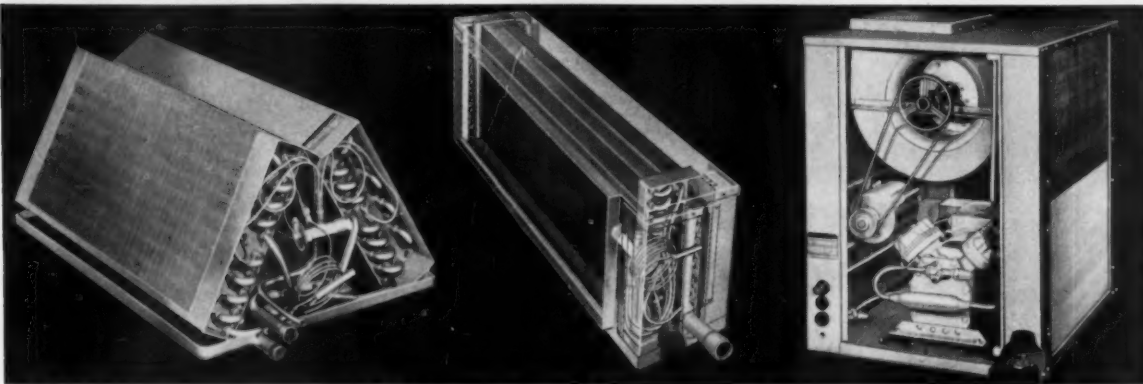
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Firm

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CRANE



"A" type cooling coil for any upflow application. Comes with aluminum drain pan. Special galvanized plenum is also available.

Flat-type cooling coil for horizontal air flow. Installs in duct of one-direction air-supply trunk.

Air-cooled condenser is shown in rugged weatherized cabinet suitable for outside installation in unprotected area.

NOW- a complete line of Crane Sunnyland "Add-on" air conditioners

How many folks in your area own forced-air furnaces? Almost every one of them (we'll bet) is a prospect for Sunnyland "Add-on" cooling.

Crane's complete line of Sunnyland "Add-on" air conditioners is designed for every type of home. Air-cooled condensing units are available in 2-, 3-, and 5-ton sizes. Cooling units fit basement, hi-boy, horizontal, and counterflow furnaces. Prices are competitive, installation fast and easy.

With hot weather coming, there'll be plenty

of talk about the comfort of central air conditioning. And with the Sunnyland "Add-on" line, you can get into the business in a big way.

Get all the details from your Crane Branch or Crane Wholesaler today. In plumbing, too, ask for Crane Quality.

P. S. Check into Crane's complete line of Sunnyland year-'round air conditioners, too. 2-, 3-, and 5-ton sizes. Air- and water-cooled. For gas or oil.

CRANE CO. 836 South Michigan Avenue, Chicago 5
VALVES • FITTINGS • PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

25 MILLION LIFE READERS

WILL SEE "ADD-ON" STORY!

On May 6, 1957 Crane will tell millions of *Life* readers how they can air-condition with their furnace—the Sunnyland add-on way. Put this big, powerful advertisement story to work for you with a strong local tie-in. Get all these materials free from your Crane Branch or Crane Wholesaler.





**Results
speak for themselves!
I'm sold on**

McQUAY-NORRIS DEPENDABILITY

"Like most furnace dealers, I've been exposed to a lot of fancy furnace valves and controls, but in the long run I've found that you've got to have dependable performance as well.

That's what has built my customers' confidence in me and made my business a success.

I've used McQuay-Norris valves for years because I can rely on them!"

Features . . .

- Time Tested by leading manufacturers
- AGA and UL listed for use with natural, manufactured and liquid petroleum gases
- Soft-seat valve with positive seal
- Fail-safe—spring pressure always closes the valve
- Operates in any position
- Resists corrosion, stands up under extremes of temperature
- Stainless steel working parts, special analysis aluminum die casting in valve body, soft seat of special formula Buna N



McQUAY-NORRIS
Manufacturing Company • St. Louis 10, Mo.

The famous
McQuay-Norris
spring-loaded
soft-seat
solenoid valve



47 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS:

WITH THE ASSOCIATIONS

(Continued from page 126)



NATIONAL Association president, William A. Kuechenberg (left), visits with Walter Marth and Angelo Hoffman at Wisconsin convention

dent; A. T. Ihde, Milwaukee, second vice president; Ben Brozek, Milwaukee, secretary; and Frank Kramer, Milwaukee, treasurer. New directors elected for three years are Ralph Hovland, Eau Claire, and James Harbridge, Fond du Lac. Remaining as directors for one year are Al Olsen, Racine, and Martin Petersen, Kenosha. Directors with two years to serve are Ted Kuck, Sheboygan, and Tony Demshar, Milwaukee.

Stresses Accurate Bidding

In laying the groundwork for the panel on estimating and cost accounting, Richard E. Walsh pointed out the need for an accurate system for dealers and contractors to use to determine bids and for verifying these estimated costs by comparing with actual costs. Mr. Walsh told how the St. Paul association in 1954 spent \$3000 to publish a 100 page guide for its members. The book was assembled and evaluated by a certified public accountant. Now out of print, the book was given free to each member of the association and sold for \$10 to others.

Ted Kuck outlined the estimating and cost comparison procedure he uses in his business. As an example, he showed how he had estimated the cost of a ventilating system. He listed separately such items as the weight and cost of the sheet metal used, grilles, dampers, filters, fans, insulation, canvas connections, hoods, miscellaneous job costs and labor. He added an amount equal to 21 percent of the total of these costs to cover overhead. To this second total he added an amount equal to the percent that he used for his profit figure. The final total was his bidding price.

When this ventilating job had been completed, the estimated figures were checked against actual costs. This check showed that failure to read the specifications properly had resulted in expensive alterations which practically removed the profit expected.

Walter Marth pointed out the fallacy of using any rule of thumb method in estimating one job along the same



REVIEWING plans for Milwaukee's second WHAM program are (l to r) Ben Brozek, Richard Mamayek, Robert Schmieder

lines used on a similar job that had produced a profit some time in the past. Mr. Marth also noted that the Federal government requires a dealer to maintain an adequate bookkeeping system, so that records can be reviewed to verify taxes. Mr. Marth advised dealers to use these records to periodically review the costs of doing business and then adjust their overhead percentage figures accordingly.

It pays to remember that the size of a job lot order for a specialty item has a definite effect upon the cost per item. This point was made by Ralph Hovland, who told of an experience where a customer had initially ordered 1500 pieces at a specific price. When a second order for the same item came through, it was for only 400 pieces, but at the same price. The office clerk accepted the order without realizing that the setup time involved was the same for both orders and that the smaller order could not be produced at the same price. The use of pricing tables for preparing quotations has helped reduce the possibility of this error being repeated.

In discussing the programs underway in the Sheet Metal and Air Conditioning Contractors' National Association, William A. Kuechenberg reminded contractors that the dues they paid were less than the dues paid by journeymen to maintain membership in the union. Mr. Kuechenberg said that contractors should consider the membership in SMACCNA as important as the journeyman considers his union membership. Willingness on the part of the contractors to pay larger annual dues into their associations — local, state and national — would, Mr. Kuechenberg said, make it possible to successfully complete many of the programs now underway.

Further Organizing Planned

At a recent meeting of the Sheet Metal Workers' International Association, a new program was described to organize sheet metal workers employed in fabricating

(Continued on page 134)



**CHRYSLER ENGINEERING
AT WORK—FOR YOU!**

Airtemp

Furnaces
designed to
meet **all**
market demands

***...with the important "plus" of
optional FUTURE COOLING!***

Only Airtemp dealers enjoy such unparalleled sales opportunities because *Airtemp* offers such a complete selection of superior-engineered air conditioning.

Selling the Airtemp heating line holds another important benefit, too. It's Chrysler's two-way "*design for the future!*" *First*, dependable performance—continuing customer satisfaction—*Chrysler-engineered*. *Second*, optional cooling lets buyers convert Airtemp furnaces to yearound air conditioning any time!

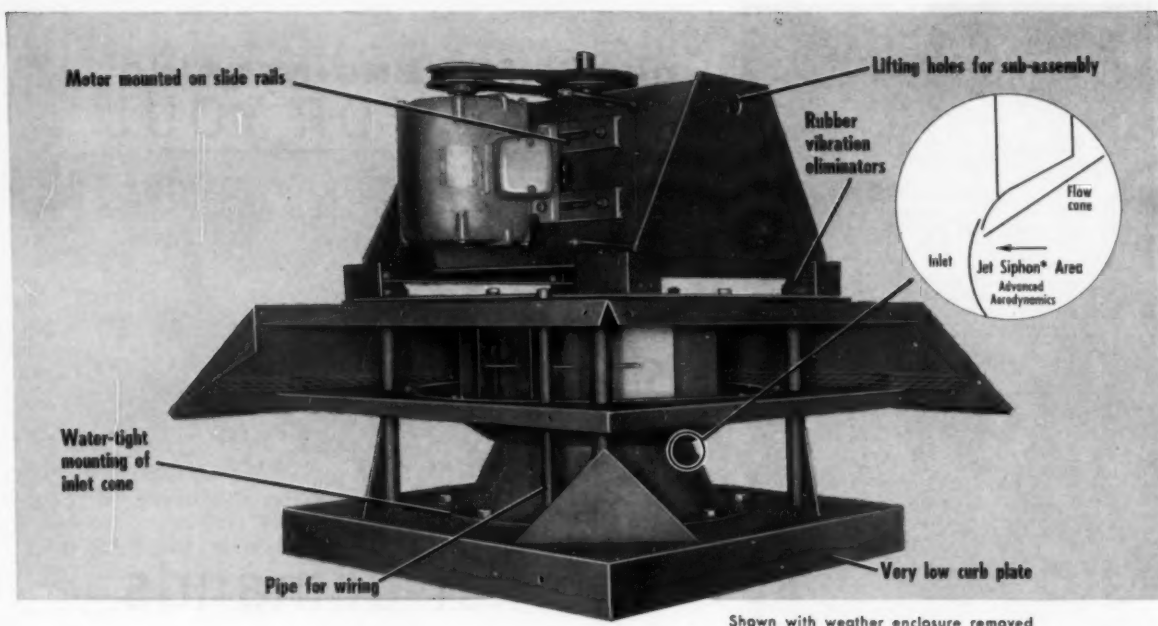
Big-Scale Promotion Help for You!

Effective new *Prospect-Getting Campaigns*—new sales-making *Special Promotions*—and a whole array of other brilliant, new *Merchandising Aids*! And big full-page, full-schedule national advertising! Why not join the Chrysler Sweep Forward? Write for details on Airtemp franchise opportunities *today*. Airtemp Division, Dept. AA-4-57, Chrysler Corp., Dayton 1, Ohio.

Airtemp
DIVISION
CHRYSLER CORP.

offers a **greater** selection of air conditioning equipment...**286** models

...38 of which are furnaces



PLUS VALUES...all yours in the Clarage Centrilator

POWER ROOF VENTILATOR — CENTRIFUGAL TYPE

Jet Siphon* feature for stable, high efficiency.

Static pressures to 2" — thus well suited to both light-duty installations without ductwork and applications where ductwork or hoods impose considerable resistance.

Adaptable to a wide range of motor sizes.

Variable pitch V-belt drive.

Wheel and inlet designed for streamlined air flow.

Built heavy-duty throughout to assure long-lasting, trouble-free service.

Every wheel statically and dynamically balanced on precision machines.

Inspection panel and complete accessibility.

Low overall height.

Venting of motor and drive area.

Engineered and constructed for extra quietness.

Heavy-duty anti-friction bearings.

Simple installation — only 4 bolts required.

Write today for Bulletin 550. Clarage Fan Co., Kalamazoo, Mich.

CLARAGE

*Patent applied for

**...dependable equipment for
making air your servant**

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal

Get set to make
more money...with

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CUT HERE



**HERE'S FRONT LINE
SALES SUPPORT!**

Clip this out... display it... hang it up
NOW. Watch what happens when folks
know you handle Thatcher—the name
that's stood for quality continuously since
1850.

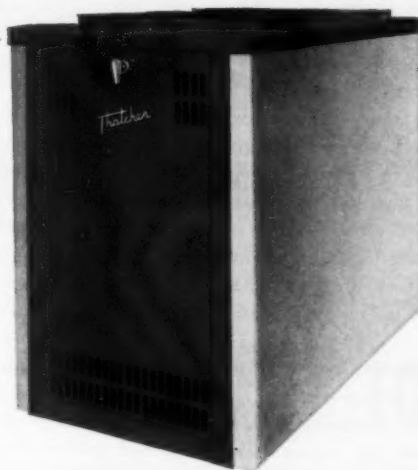
**IF YOU'RE IN THE MARKET
FOR A BETTER FURNACE**

READ THIS

GET A

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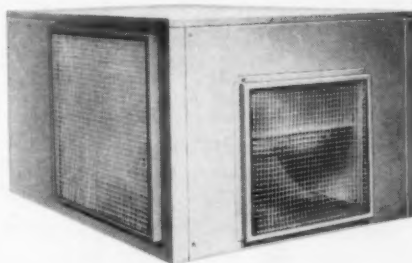
**IT'S GUARANTEED
FOR 10 YEARS**



**AND... YOU CAN ADD SUMMER
COOLING ANY TIME... WITH THIS
THATCHER AIR CONDITIONER**

It's completely air-cooled... uses no water!
Designed for easy installation with the heating
unit.

You get winter warmth and summer air
conditioning—all from one central system!



Get your **Thatcher** heating and cooling units here...
at year-round comfort headquarters

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Thatcher

"Since 1850"

FURNACE COMPANY, GARWOOD, NEW JERSEY

Long-established customer acceptance and satisfaction, plus
competitive pricing... and active dealer support... make
Thatcher your money-making line.

You are invited to qualify for a Thatcher dealership. Write
today.

Boilers • Oil Burners • Furnaces • Air Conditioners

WITH THE ASSOCIATIONS

(Continued from page 130)

and manufacturing plants which produce such products as stainless steel kitchen equipment, prefabricated duct and fittings and similar items. The pay scale for these workers would be raised close to that of sheet metal workers in the building trades. This meeting was attended by Roland Biersach and William Mansfield, who reported that a negotiating committee was working on a suggested agreement form to provide local bargaining committees with sample clauses to help adapt contracts to cover local situations. This information will be available at the national SMACNA office in Elgin when the negotiating committee has completed its assignment and the forms are ready.

Heating and cooling engineering and installation trends were outlined by Norman M. Gohlke. He recommended that a return opening be taken from individual rooms and that such openings not be located in the ceiling nor high on the inside wall of a room. He pointed out that such locations permit cold air to collect at the floor level with the result that summer air conditioning installations fail to provide their full potential for indoor comfort.

One hundred fifty practical ideas used by sheet metal contractors throughout the country were described by Lawrence E. Gichner. He used a slide projector to illustrate them. His presentation was based upon information he has accumulated during more than 10 years of visiting shops of all sizes in different parts of the country. The ideas presented covered safety measures, employee convenience, stocking techniques and labor saving devices.

Plastic Duct Use Described

The growth of industrial sheet metal applications was covered by Robert Holming. He pointed out the increased use of chemicals in manufacturing procedures and explained that many of these new processes demanded that ventilating and exhaust systems be capable of withstanding corrosive gases. The increased use of plastic duct systems to replace short life sheet metal systems has led a number of contractors to include this service in their operation. Application problems encountered in plating plants, chemical factories, foundries and the paper manufacturing industry were described.

The new state ventilating code was discussed by L. C. Fenlon, who told of changes that had been included and why they were required. He used the wood working industry as an example to show that old requirements were inadequate to meet the needs of modern material handling systems. New machines have reached production speeds three times higher than machines on the market five years ago. To provide adequate ventilation, additional air had to be provided on a basis equal to the production rate, he said.

Cleveland Technical School Begins

A TEN WEEK Technical School on warm air heating was begun on March 4 sponsored by the Cuyahoga County Sheet Metal Contractors Association. The school will cover the fundamentals of warm air heating, how to figure heat losses, how to size furnaces and duct work, and how to make proper adjustments. Herbert Gilkey, National Warm Air Heating and Air Conditioning Association, will serve as instructor aided by various guest lecturers. The school, which will meet one evening a week, is restricted to 25 students.

Western Show Features Conferences

CONFERENCES of interest to the industry will be conducted in conjunction with the Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit to be held May 4-8 at the Shrine Exposition Hall in Los Angeles. The Western Air Conditioning Industries Association, sponsors of the show, have announced plans for panel sessions to emphasize the importance of modernized or new equipment. At the show, manufacturers and distributors will display their latest products and services.

The first three days, May 4-6, will be open to the trade only: management of industrial and retail establishments, government purchasing officials, hotel, motel and restaurant owners and operators, engineers, architects, builders and contractors. On the last two days, homeowners will be invited to see the latest developments in the field.

The association has also announced the formation of the Air Conditioning Research Foundation dedicated to research and educational projects of benefit to the industry.

IHACI Sells 40,000 Stamps

THE INSTITUTE of Heating and Air Conditioning Industries in southern California reports that more than 40,000 stamps have been sold to finance its consumer education program since its beginning last October. The stamps, sold at the rate of 50 cents and \$1, have built up a fund of \$30,000 to be spent on advertising and promotion. Stamps are sold to manufacturers to be affixed to units and the cost passed on to the consumer. The Institute reports that the major share of all units installed in the area now bear the stamps. The Institute is currently making an all out effort to gain support for the program from all segments of the industry.

The promotion program is concentrating on newspaper advertising, public speaking, and a steady flow of press releases.

R. E. Harkens, managing director of IHACI, explained the stamp program to a key group of southern California

(Continued on page 138)



Saves \$100 per unit

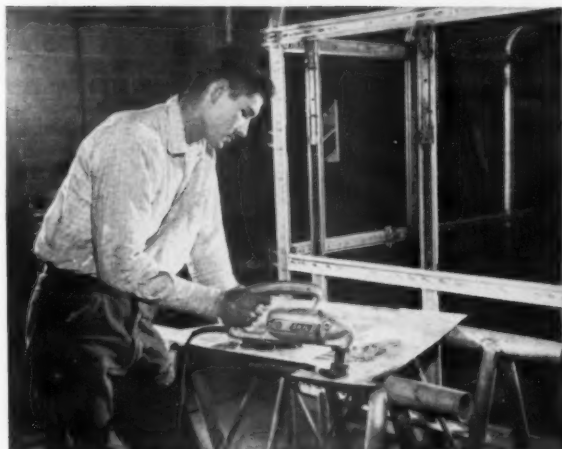
Griffin Tank and Welding Service of Dallas, Texas, custom builds geographic photographic equipment. This equipment must be lightproof, weatherproof, dustproof and air tight. "When SKIL drivers were substituted for hand tools for fastening, we saved over \$100.00 per unit, and quality improved tremendously," says C. B. Jones, Chief Engineer.



Saves one operator

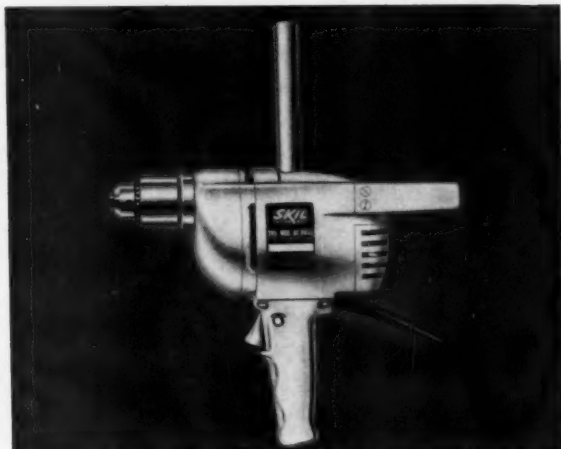
At Mercury Engineering Company, Milwaukee, Wisconsin, two men formerly handled the job above—drilling a 1½" hole in 16" steel. Then a SKIL Model 163 was tried. Now, one man not only drills, he also reams, taps and hones. "We always had good experience with all models of SKIL drills," says Ted Curtis of Mercury.

Metalworkers SAVE with SKIL tools



Saves \$100 per week

"Our new SKIL Shear paid for itself in the first week," says J. M. McLain, owner of J. M. McLain & Sons Trailer Company, Houston, Texas. "In using other makes of shears we found that maintenance costs were about to run us out of business. Some operations were cut from 30 minutes to 1½ minutes. My men like SKIL shears because they are adaptable."



Save with New ½" Model 80 Drill

All-new design: shorter, narrower—one pound lighter! New power for fast drilling on the toughest jobs. No matter what you have to drill, cut, sand or grind, there's a SKIL tool to do the job faster, better, cheaper. Let your SKIL distributor show you why. Let him show you the speed, power, versatility and ease of handling of all SKIL power tools.

Write SKIL direct for free literature and the name of your nearest distributor.

Made only by SKIL Corporation, 5033 Elston Avenue, Chicago 30, Illinois. In Canada: 3601 Dundas Street West, Toronto 9, Ontario. Factory branches in all leading cities.

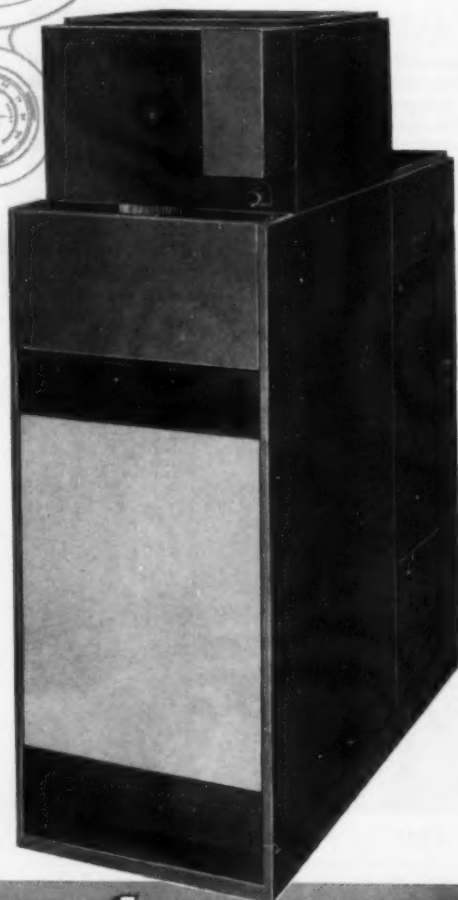
SKIL
PORTABLE TOOLS

IN FAIR WEATHER OR FOUL

FRASER-JOHNSTON IS YOUR BEST FRIEND

Heating and air conditioning distributors, jobbers and dealers who have been in the business for many years know Fraser-Johnston furnaces and air conditioning units are the best engineered on the market. They make a hit with homeowners, because they are smart-looking, efficient, trouble-free. Fraser-Johnston's strict *jobber and dealer policy* has been protected for 30 years.

This Company always sells through legitimate trade channels. In fair weather or foul, you're protected with Fraser-Johnston superior equipment and superior marketing policy. A few territories are now open. Write today for catalog sheets, engineering data and sample advertising.



Fraser-Johnston

OVER A QUARTER OF A CENTURY OF LEADERSHIP

1900 17TH STREET • SAN FRANCISCO, CALIFORNIA



Stapling parts like these is five times faster than welding or riveting.

50% labor saving on fastening metal furnace parts

If you're still riveting, crimping or spot welding sheet-metal seams, it may pay you to read about this California fabricator.

Since switching from riveting and spot welding to Bostitch stapling, his records show a 50% cost reduction in metal parts fastening.

Using a Bostitch S13C Metal Stitcher, workers stitch neat, secure seams up to five times faster than

they could weld or rivet them. This powerful automatic machine drives staples through two to three thicknesses of metal and clinches them tight. There's no pre-punching and no hole-alignment problem. Workers need no special skill or training.

Let a Bostitch Economy Man show you how you may cut costs—increase profits. Call the Bostitch office in your city, or send the coupon.

Fasten it better and faster with



Bostitch, 944 Mechanic St., Westerly, R. I.

☐ Please have an Economy Man call on me.

☐ Please send me special information about fastening sheet metal.

We are presently using (please check)

☐ Riveting ☐ Crimping ☐ Spot Welding

Name

Company

Address

City Zone State

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(More association news on page 141)

WITH THE ASSOCIATIONS

(Continued from page 138)

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EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Heating, Cooling Line

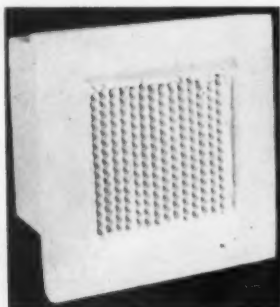
"GOLDEN LINE" of summer and winter air conditioners with gold-colored trim in honor of the firm's 100th anniversary—*Mueller Climatrol, Dept. AA, 2005 W. Oklahoma Ave., Milwaukee 15.* Featured are



"Golden Twin" highboy central heating unit (Type 224 oil-fired model and Type 124 gas-fired unit) and Type 906 cooling unit, designed for combination or for separate installation. Cooling unit has its own blower, automatic dampers, thermostatic control. Rated at 2, 3 and 5 hp, unit is less than 6 ft high. Companion furnaces are in 100,000, 125,000 and 150,000 Btu models. Featured are drilled port cast iron burners, large blowers, automatic gas valve, thermostat and safety pilot. Also available is low boy furnace in gas- or oil-fired models rated at 90,000 to 150,000 Btu. It stands less than 4 ft high. Oil-fired models are adaptable for conversion to gas.

Dust Filters

"FLANDERFRAX" TYPE V filters for temperatures up to 2300 F, and "Airpure" expansible dust filter with bed

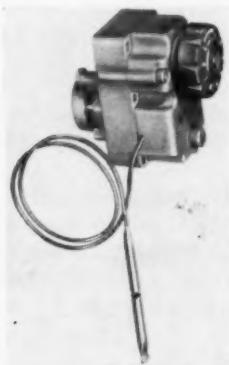


which can be expanded when necessary to enlarge the effective filter face area, breaking up accumulated

dust cake on filter and restoring high porosity inside body of filter—*Flander Filters, Inc., Dept. AA, P.O. Box 218, Riverhead, N.Y.* Type V filters are constructed of homogeneous material to provide uniform expansion of all parts under high heat, to avoid ruptures or separation. Expansible dust filter efficiency is said to be virtually unaffected by changes in bed porosity. Progressive migration of deposited aerosol occurs after each relaxation of filter bed, and dust deposits deeper into interstices of fibers where permanent storage takes place with negligible decrease in bed porosity and slight increase in air flow resistance. Expansible filters are in variety of media.

Modulating Control

"MODUSNAP" MODEL T5001 remote-bulk, snap action modulating head for "Adatrol" 8V592 gas cock pilot safety device—*Minneapolis-Honeywell Regulator Co.,*



Dept. AA, 2726 Fourth Ave. S., Minneapolis 8. Designed for factory installation or addition later, unit is controlled by a liquid-filled bulb usually placed in return air space of gas-fired unit. When temperature change is required, unit passes a pressure change on to the valve. Head snaps open to minimum burner rate, then modulates between minimum and full burner rate or snaps off as required.

Insulation Adhesive

TYPE IA-22 ADHESIVE designed to bond insulation to sheet metal—*Duro-Dyne Corp., Dept. AA, 800 Third Ave., New Hyde Park, N.Y.* Other uses are: bonding insulation to insulation at joints; sealing joints; buttering insulation edges. Adhesive, said to tack in 10 seconds, is designed for glass fiber, asbestos, cork and

*Standard... best for western living!**



bring "Lanai" comfort
indoors with

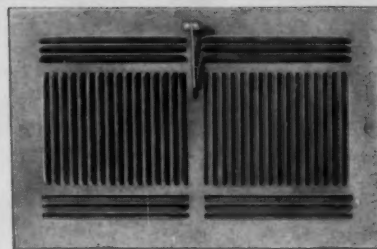
STANDARD'S 551



You can duplicate the clean refreshing atmosphere of golden weather, indoors, with Standard Stamping's No. 551 Perimeter Wall Registers. These registers distribute a precise volume of warm or cool air throughout the conditioned space, without blasts, hot spots, or cold corners. They make interiors as uniformly comfortable as a lanai on the best of days, and they're as silent as a night breeze. Features include Standard's exclusive fractionator volume control and 360° hemispheric diffusion. No. 551 registers are easy to install, attractively styled, available for immediate delivery, and cost no more than ordinary registers!

Mail the coupon for prices and new FREE catalog of the complete Standard line of registers and grilles!

**And for comfortable living everywhere!*



... perimeter wall registers for 2-way systems

- FRACTIONATOR VOLUME CONTROL
- SMART MODERN LINES
- STANDARD SCREW HOLES
- ATTRACTIVE TAN METALLIC FINISH
- SINGLE SHUTTER CONTROL
- FOR SIDEWALL OR BASEBOARD INSTALLATION

STANDARD STAMPING & PERFORATING COMPANY

3137 WEST 49TH PLACE, CHICAGO 32, ILLINOIS

Gentlemen: Please send me your new catalog showing the complete line of Standard Stamping Registers and Grilles.

Name _____
 Company _____
 Address _____
 City _____ Zone _____ State _____

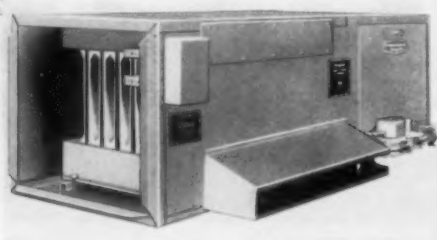
equipment developments

(Continued)

other insulation. Brake forming of metal and insulation is possible immediately after bonding, the company states. Waterproof, transparent adhesive is solvent in petroleum-naphtha or white gas and requires no thinning. Temperature range is -30°F to $+325^{\circ}\text{F}$ or more for blanket insulation; -30°F to $+250^{\circ}\text{F}$ or more for board types. Gallon covers over 230 sq ft with brush application, more than 270 sq ft with roller, the company states.

Horizontal Furnace

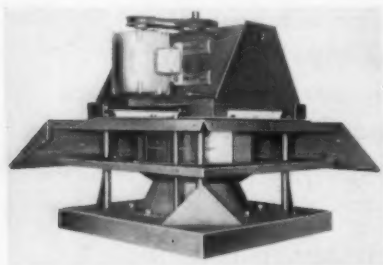
MODEL 326 GAS-FIRED horizontal furnace featuring reduction in height to $17\frac{1}{2}$ in. from base to top—*Bryant Mfg. Co., Dept. AA, 2020 Montcalm, Indianapolis.*



Designed for installation in home with low-pitched roof, furnace features slide-in drawer type burner assembly designed for improved component access. Unit is available in 85,000 and 105,000 Btuh capacities, to operate on natural, manufactured, L.P. and L.P.-air gases, according to the manufacturer.

Power Roof Ventilator

"CENTRILATOR" power roof ventilator in 10 sizes with capacities to 26,400 cfm—*Clarage Fan Co., Dept. AA, North & Porter Sts., Kalamazoo 16, Mich.* "Jet Si-

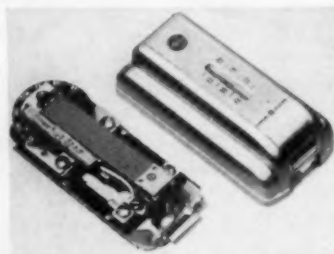


phon" feature is designed to produce stable and quiet operation. Unit is said to provide static pressures up to 2 in. for applications where duct work or hoods may impose considerable resistance. Low curb unit is said to feature: statically and dynamically balanced fan wheel; motor mounted on slide rails; adaptability to wide range of motor sizes; vented motor and drive

area; rubber vibration eliminators; watertight mounted inlet cone; and heavy duty anti-friction bearings.

Variable Heat Anticipator

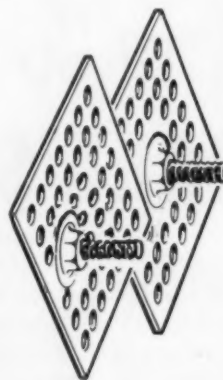
VARIABLE HEAT ANTICIPATOR which helps provide even temperature control under extreme weather conditions—*General Electric Co., Appliance Control Dept., Dept.*



AA, 1 River Rd., Schenectady 1, N.Y. Device causes thermostat to turn off heating system before room temperature becomes too high and to turn it on before temperature dips too low, according to outside weather conditions. One thermostat can be used with all 24-v gas and oil control circuits ranging from 0.2 to 0.8 amp. Built-in slider on anticipator is set at time of installation for the particular heating system control circuit.

Offset Insert Base Fastening Device

OFFSET INSERT BASE with cup screws or captive nuts for securing fixtures etc. where drilling or penetrating



wall surface is undesirable—*Stic-Klip Mfg. Co., Dept. AA, 500 Regent St., Cambridge 40, Mass.* Offset insert base enables fastening device to be hidden behind the item being hung.

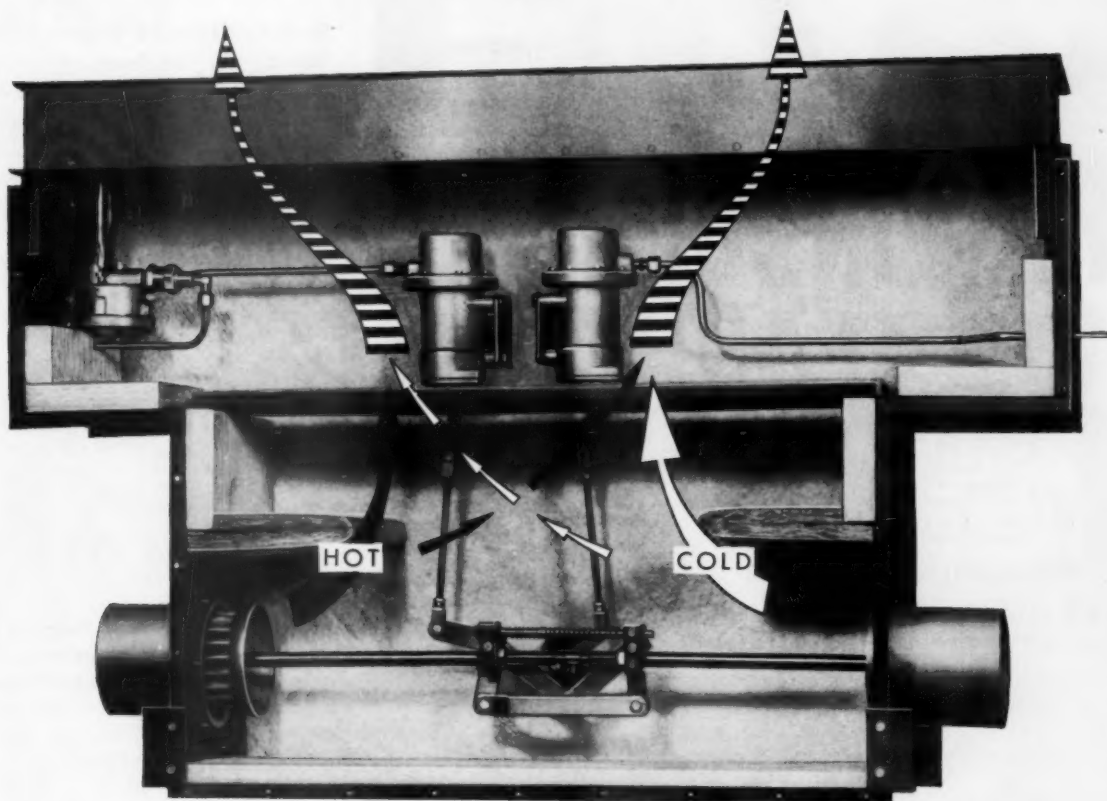
Pittsburgh Lock Hammer

AIR POWERED PITTSBURGH lock hammer designed for forming lock with single pass—*Modern Mfg. Co., Dept. AA, Willow Grove, Pa.* Unit handles 30 to 24

How **ANEMOSTAT**[®]

All-Air Constant Volume

High Velocity units operate



Here is a vitally important advance in the field of air distribution. Anemostat All-Air High Velocity units, *with new simple automatic controls*, deliver constant volume, no matter what the fluctuations from 1:4 or 4:1 on inlet pressures of either the hot or cold valve.

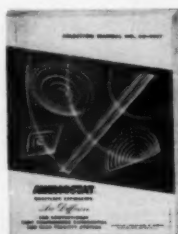
Each unit is a single package including the controls and integral thermostats, if required. There is complete accessibility of all controls through removable diffusers. No access panels are required. Capacities of **CONSTANT VOLUME** units can be pre-set at the factory.

These Anemostat **CONSTANT VOLUME** units

- Assure scientific draft-free distribution of air.
- Are available in 100% induction units.
- Include Anemostat die-cast metal rocket-socket valves. More than 50,000 of these valves are in service, and not a single one has needed maintenance.

- Operate on standard 15 lb positive acting compressed air systems.

Each unit contains a micropressure regulator in the box, sensitive to .02 static pressure. This in turn operates a pneumatic motor and independently maintains by adjustment constant volume, while the wall mounted or integral thermostat controls the outlet mixture temperatures.



Write on your business letterhead for your copy of

New Anemostat Selection Manual 60

*to Anemostat Corporation of America,
10 East 39 Street, New York 16, N. Y.*

ANEMOSTAT: The pioneer of All-Air Velocity Systems

DURO DYNE

announces NEW INSULATION ADHESIVE IA-22



Coverage:

Brush Application — 230 + sq. ft. per gallon
Roller Application — 270 + sq. ft. per gallon

Temperature Range:

— 30°F to 325 + °F (Blanket)
— 30°F to 250 + °F (Beard)

At last! A specific use adhesive designed for a quick, strong, permanent bond of insulation to sheet metal.

Duro-Dyne's new Insulation Adhesive IA-22 was created for bonding insulation to metal; insulation to insulation (at joints); sealing joints; "Buttering" insulation edges. Designed for glass-fiber, asbestos and cork insulation, etc.

Tack time is only 10 seconds! This means the bond is immediate and positive. What's more, long "open time" range permits bond one hour or longer after application of adhesive. Permits rapid coating of duct surfaces and provides positive bond of heavy insulating materials without auxiliary holding devices.

Duro-Dyne Adhesive IA-22 is water proof, clear in color, solvent in petroleum-naphtha or white gas. Requires no thinning. For full details, write today.

The Greatest Name in Sheet Metal Specialties



DURO-DYNE CORP., 800 Third Avenue, New Hyde Park, N. Y.

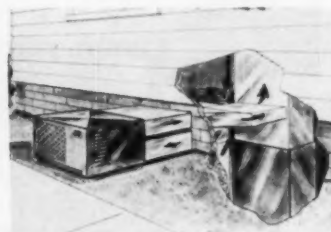
CANADIAN DISTRIBUTORS: Douglas Engineering Company, Ltd., Montreal and Toronto
E. H. Price, Ltd., Winnipeg and Vancouver

equipment developments (Continued)

ga sheet metal, can be used in all kinds of metal work, according to the manufacturer. Unit is portable; heavier models for increased capacities are also available from the company.

Self-Contained Units

MODEL 556 self-contained central summer air conditioner in 19,000 and 30,000 Btuh models, said to be smaller than some window units—Bryant Mfg. Co., Dept. AA, 2020 Montcalm, Indianapolis. Condenser is air cooled. Distilled condensate is distributed over hot condenser coil by slinger wring to dispose of moisture condensed from room air by cool-



ing coil. Larger unit is waterproof, can be installed outside, adjacent to foundation wall with duct work connecting to the furnace system. All used air is replaced by outdoor air. Filter rack can be remounted to provide top, bottom or side access, or can be placed in return duct. Top or side blower discharge is available. Air delivery is rated at 1000 cfm for larger size, 600 cfm for 19,000 Btuh unit.

Dampers, Louvers

GALVANIZED, ALUMINUM, steel or copper louvers, shutters and dampers—Imperial Damper Co., Dept. AA, 664 Edgecombe Ave., New York 22. Adjustable or stationary louvers, constructed to job requirements, have screens, can be fabricated for vertical or horizontal installation and are in standard and storm-proof models. Automatic, hand operated mixing dampers are in parallel or opposed blade arrangements, can be supplied to fit requirement. Also available are automatic shutters, back pressure

How Stainless Jobs Can Help Increase Your Profits

Adding stainless steel kitchen installations to your standard line of services can boost your profits. Here's why:

1. Because attractive stainless installations are so impressive, each new job should lead to others.
2. You can team up with builders and remodelers to get additional stainless kitchen installations.
3. Because stainless is the highest quality material available for kitchen equipment, you can expect a good profit on each job.

Easy to Fabricate

For installations like the one shown here, located in a nurses' home, fabricating could have been done either on the job or in the shop. Holes for sinks were cut in a flat sheet of stainless, then the sheet and splash strip were secured to $\frac{3}{4}$ " plywood with a contact bond adhesive. When these were in place, the job was completed by soldering pre-formed stainless steel moldings around the sinks, counter edges, and corners.

Distributors Help

To further simplify your work, check with your nearest distributor of Armco Stainless Steels concerning services he offers. He can often shear or slit stainless to the size you need. Furthermore, he is ready to work with you on gage, finish, and fabricating techniques so you'll get the most profit from your jobs.

If you would like to know the name of your nearest Armco Distributor or the names of manufacturers of stainless sink bowls and molding, just fill in and mail the coupon.



Here's how the kitchen in a nurses' home looked **before** and **after** it was remodeled with Armco Stainless Steel for sinks and counter tops. It's easy to see why this lustrous, easy-to-clean material is in demand for kitchens of institutions, clubs, fraternal organizations, and in more and more private homes.



ARMCO STEEL CORPORATION
1217 Curtis Street, Middletown, Ohio

Send me names of manufacturers of stainless sink bowls and molding.
Send me the name of my nearest Armco Distributor.

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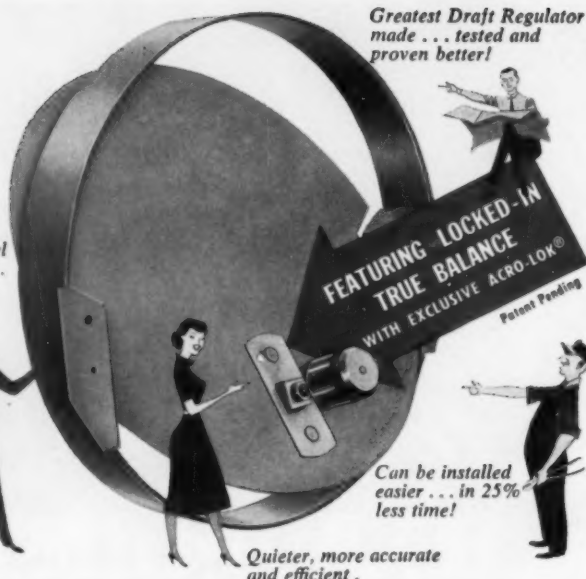
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Sheffield Steel Division • Armco Drainage & Metal Products, Inc. • The Armco International Corporation



This is our new
Commercial Model
8 different sizes...
priced right too!



STEINEN Introduces New Complete Line of Draft Regulators 6" thru 32"

NEW DESIGN, NEW PACKAGING, NEW EXCLUSIVE FEATURES

Now... after three years of engineering research and development... a complete line of *Residential and Commercial Draft Regulators* that are vastly superior to any other make.

Features of the Residential sizes include One Calibrated Scale — from .02" to .08", permitting accurate horizontal, vertical or diagonal installation without changing parts and Push-Pull Slide Bar Control that provides automatic balance — greater sensitivity at every setting.

Features of the Commercial sizes include Locked-In True Balance as a result of exclusive Acro-Lok and the unique design and packaging that cuts weight by 20% and saves as much as 40% in space.

These are only four of the combined fourteen features that make it important that you investigate and compare this new line. Your own comparison will prove that there is no finer constructed, more efficient regulator on the market. Write for complete information today!

40% SAVING IN SPACE Here is dramatic evidence of the saving in space resulting from new unique packaging of all Commercial Models — 20% lighter... cuts shipping costs.



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Draft Regulators • Oil Burner Nozzles • Nozzle Adaptors • Kits & Strainers • Flame Mirrors • Electrode Assemblies

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equipment developments

(Continued)

dampers, ceiling shutters for roof ventilators and fans, fire dampers, V-type ventilating louvers, sleeves, elbows, etc.

Air Cooled Units

MODELS ACP-20 AND 35 air cooled package cooling units rated at 22,000 and 36,000 Btuh respectively—*American Radiator & Standard Sanitary Corp., Air Conditioning Div., Dept.*



AA, 40 W. 40th St., New York 18. Designed for independent or add-on use, units have compressor, condenser, cooling coil and blower all in single jacket. Twin compressor operation is controlled by 3-way switch. Continuous blower operation reduces humidity. Units are rated at 11,000 and 17,000 Btuh with single compressor operation; each has a 1/3 hp blower.

Sealing Tape

CLOTH-BACKED adhesive tapes for sealing ducts and insulating materials—*Arno Adhesive Tapes, Inc., Dept. AA, Michigan City, Ind.* Tape is said to seal instantly upon application and is reported to have sufficient tensile and adhesive strength to eliminate need for other joint fastenings in some cases. Flame-resistant and non-flame-resistant types are available, in variety of colors.

Insulation Edging

"TIN EDGES" designed to protect insulation from tie-wire bite or to produce firm corner under insulation cover, when insulation is installed on outside of duct—*Aljon Mfg. Co., Dept. AA, 54-18 43rd St., Maspeth, N.Y.* Made of black japanned metal, edges can be cut to go around irregular surfaces. They are available



He wouldn't be guilty of leaving fingerprints!

The hands that go into these goatskin gloves belong to a skilled worker in General Electric's new Tyler, Texas plant where whole-house air conditioning equipment is built.

The reason for the goatskin gloves? Even the barely perceptible perspiration that forms on human fingers would have an adverse effect on the compressors which are the heart of General Electric central system air conditioning. In any necessary handling before the compressor is factory-sealed for protection, goatskin gloves are worn.

This is an extra step we take — one of the many ways we safeguard the quality of our

products. And this quality control, standard practice at Tyler, Texas, is far-reaching in its effects. Wherever you may install General Electric Home Heating and Cooling systems it is your assurance of the kind of user satisfaction that means customer good will and continued profits. General Electric Home Heating and Cooling Dept., Tyler, Texas.

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- ✓ Mesh ($\frac{3}{4}$ x $1\frac{1}{4}$) filters 72% of free area yet darkens the duct and reduces highlights from back of the grille.
- ✓ 14 gauge steel solid bars $\frac{1}{4}$ " deep—strong enough to be "kick-proof"—(a must for schools).
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equipment developments

(Continued)

in $1\frac{1}{2}$ x $1\frac{1}{2}$ in. angle, 30 in. long, and 2 x 2 in. angle, 30 in. long, packed 250 lineal ft per package. Aluminum edges are also available.

Slitting Shear

MODEL 1025 ROTARY slitting shear designed to slit sheets from 24 to 10 ga at speeds up to 60 fpm—Flagler Corp., Dept. AA, 19321 Filer Ave., Detroit. Throat is 25 in. deep; minimum width of cut is $1\frac{1}{2}$



in. Anti-friction roller guide rail is adjustable and locks in place. Rotary slitting blade is air hardening tool steel, hollow ground and reversible. Housing adjusts from 32 to 36 in. Manual overload switch is provided.

Gas Inshot Burner

SIZE 1, IG INSHOT gas burner designed as conversion unit for furnaces and water heaters, which utilizes existing firing port and refractory in original oil fired equipment—Ray Oil Burner Co., Dept. AA, 1301 San Jose Ave., San Francisco 12. Featured are flame safety controls, diaphragm type gas valves and self-energized control system. Range input for two models is from 80,000 to 265,000 Btu. A 24-v system with 100 percent shutoff is available.

Two-Temperature Water Heater

STONE OR ALUMINUM lined water heaters which provide water at two different temperatures—Hotstream Heater Co., Dept. AA, 2363 E. 69th St., Cleveland 4. Both model A-SL-DT (stone lined tank) and AL-DT (aluminum lined tank) provide water up to 180 F for home laundries and dishwashers from one outlet, and water at around 130 F for other uses from another outlet. Both models are available in 30, 40, and 60 gal sizes, for working pressure of 127.5 psi. Corrosion-proof plastic dip tube is used. Insulation is glass fiber. Other features include 100 percent shutoff for all

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Heil styling is second to none. In design and color, Heil units "fit" the job, please the home-owner.

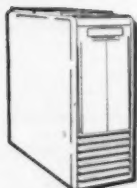
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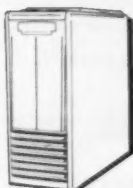
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(BTU range:
60,000 to 200,000)



13 Oil-Fired Winter
Air Conditioners
(BTU range:
84,000 to 224,000)



6 Gas-Fired
Boiler-Burner Units
(BTU range:
70,000 to 200,000)



6 Oil-Fired
Boiler-Burner Units
(BTU range:
93,000 to 252,000)



12 Summer
Air Conditioners
(Cooling Capacities:
24,000 to 36,000)
(Water and Air Cooled
Units Available)

4 Oil Conversion
Burners
(GPH Capacities:
0.50 to 6.00)
not illustrated

3 Gas Conversion
Burners
(BTU Output range:
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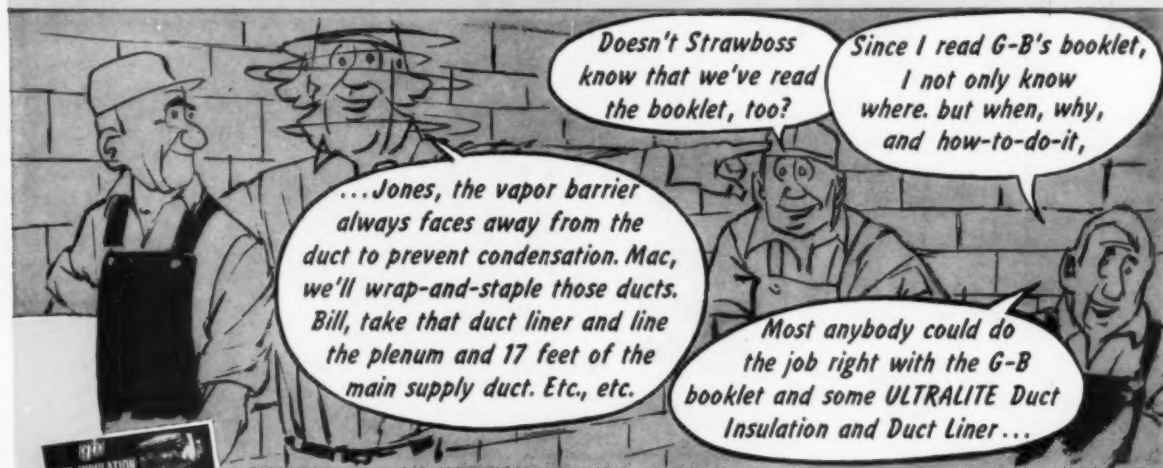
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SAN FRANCISCO, Western Fibrous Glass Products
SAVANNAH, Ga., Southern States Iron Roofing
SEATTLE, Western Fibrous Glass Products
ST. LOUIS, A. G. Brauer Supply Co.
ST. PAUL, Asbestos Products, Inc.
SYRACUSE, N. Y., Industrial Supply Co.
TAMPA, Fla., Eagle Roofing & Art Metal Works, Inc.
TALLAHASSEE, Fla., Capital Refrigeration & Supply
TULSA, Okla., Bail Distributing & Engr. Co.
TUPELO, Miss., Paine Supply Co.
WASHINGTON, Walter E. Campbell Co., Inc.
WICHITA, General Metals, Inc.
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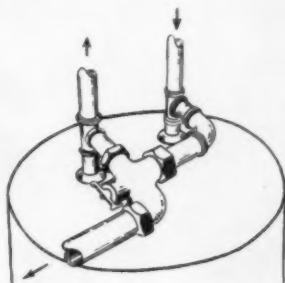
equipment developments

(Continued)

gases, bell air mixer shutter and steel outer drum, painted inside and out.

Water Tempering Valve

"DUAL" ADJUSTABLE tempering valve which provides 180 F controlled hot water to the regular hot water supply for baths, etc.—Quiet Automatic



Burner Corp., Dept. AA, 33 Bloomfield Ave., Newark 4, N.J. Valve is installed on all the company's oil-fired hot water heaters in 30 gal glass lined and 30 and 45 gal copper lined models, according to the manufacturer.

Duct Furnace

ALUMINIZED DUCT furnace for commercial application, in four basic sizes: 200,000, 280,000, 360,000 and 440,000 Btu inputs for natural gas firing—Payne Co., Dept. AA, 700 Royal Oaks Dr., Monrovia, Calif. Featured is aluminized heat exchanger, designed for corrosion resistance. Units can be used in combination for large buildings.

Laminating Plastic

"DURAN CLAD" semi-rigid vinyl which can be laminated to sheet metal for textured plastic finish—Masland Duraleather Co., Dept. AA, Philadelphia 34. Material can be laminated to sheet before it is formed into product components. Pre-bonded components can be processed on standard metal forming machines for crimping, bending, drilling or drawing as the metal itself is worked. Washable, abrasion-resistant material is in variety of colors.

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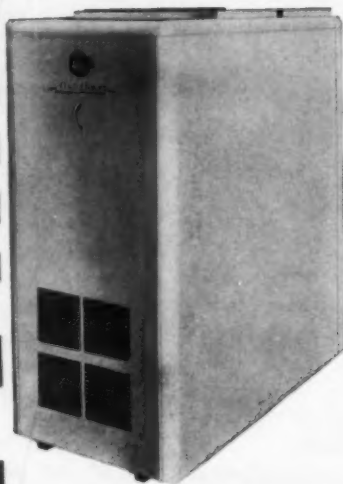
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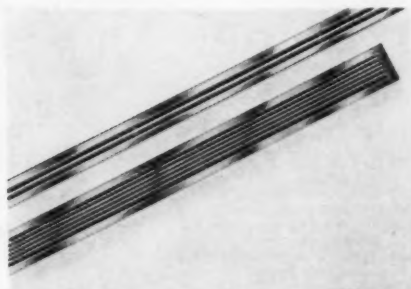
Heater and Tank Division
Conshohocken, Pa. • Chicago, Ill. • Red Oak, Ia.

equipment developments

(Continued)

Linear Air Diffusing Grilles

LINE OF EXTRUDED aluminum linear type air diffusing grilles for ceilings, side walls, and floors—*Titus Mfg. Corp., Dept. AA, Box 810, Highway 20 West, Waterloo, Ia.* Units are in 2, 3, 4, 5, 6 and 8 in. widths, in lengths of one-piece construction up to 12 ft.



and with front set of louvers fixed at zero to 15 deg deflection. Sections can be joined for continuous lengths. Snap spring clips are engineered for quick installation. Grilles are also available with rear set of individually adjustable air foil louvers or multi-shutter opposed blade dampers.

Air Cooled Central Unit

"SUPERFIVE" 5 TON capacity self-contained summer air conditioner designed for large homes and commercial applications—*Aug. G. Barkow Mfg. Co., Dept. AA, 2230 S. 43rd St., Milwaukee 15.* Horizontal unit is 50 × 24 × 61 in. Condensing unit can be installed outdoors if necessary, with low side suspended from the ceiling indoors. Units have 4-way thermostats, high-low voltage panels and high side cutout. Unit provides 2280 cfm of air circulated through evaporator section by rubber mounted propeller fans operating at 1140 rpm. It is designed for 208/220-v, 3 phase, 60 cycle; or 230-v, single phase, 60 cycle current.

Draft Caps

"FLU-BONNET" EXPANDED line of draft caps ranging from 3 to 7 in. sizes—*Tesco, Inc., Dept. AA, 1403 E. 5th Court, Tulsa 20, Okla.* Cap features pressure balancing principle which prevents excess stack loss due to winds, the company states. Aluminum materials are used throughout the units.

Sight Glasses for Refrigerant Check

"HERMETIC EYE" SIGHT GLASS and liquid indicator for checking refrigerant level—*Superior Valve & Fittings Co., Dept. AA, 1509 W. Liberty Ave., Pittsburgh 26.*

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equipment developments

(Continued)

Device has double port sight glass made from one-piece forging, without joints, soldered parts, springs, gaskets or fittings. Heat resistant, high tensile strength glass is fused into the ports. "Eye" is slightly larger than tubing in which it is placed; by looking into glass port opposite the word "full," serviceman can tell quickly if refrigerant system is fully charged. Body design includes wrench flats and prevents torque damage, the company states.

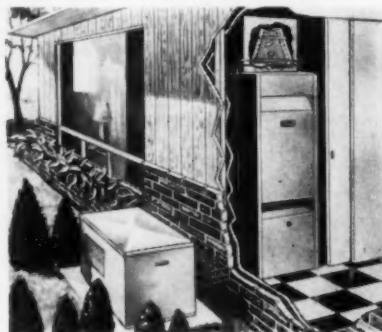
Sheet Lifter

LOW HEADROOM lifter for handling loose or bundled sheet metal—*Downs Crane & Hoist Co., Dept. AA, 540 W. Vernon Ave., Los Angeles 37.* Width is adjustable; minimum side clearance is said to permit closer stacking. Sheets can be stacked together and close to the ceiling. Widths up to 72 in. and capacities from 2 to 10 tons are available, in manual or power operation, the company reports.

Summer Air Conditioners

MULTI-ZONE self-contained cooling units for residential application—*Temco, Inc., Dept. AA, 4104 Park Ave., Nashville 9, Tenn.* Multi-zone units are in 2 and

4 ton capacities and are available with prefabricated duct work for add-on installation. For use with exist-



ing heating systems, air cooled units are available in 2, 3 and 5 ton capacities. Separate air handling unit is also available for use where furnace blower has inadequate capacity.

Draft Regulators

LINE OF DRAFT regulators for oil-fired heating systems—*Wm. Steinen Mfg. Co., Dept. AA, 43 Bruen St., Newark, N.J.* RD series is in both residential and commercial models in 6 to 32 in. sizes. Residential units are designed for accurate horizontal, vertical or diagonal installation without changing parts. Sensitive adjustment for automatic balancing at every draft set-

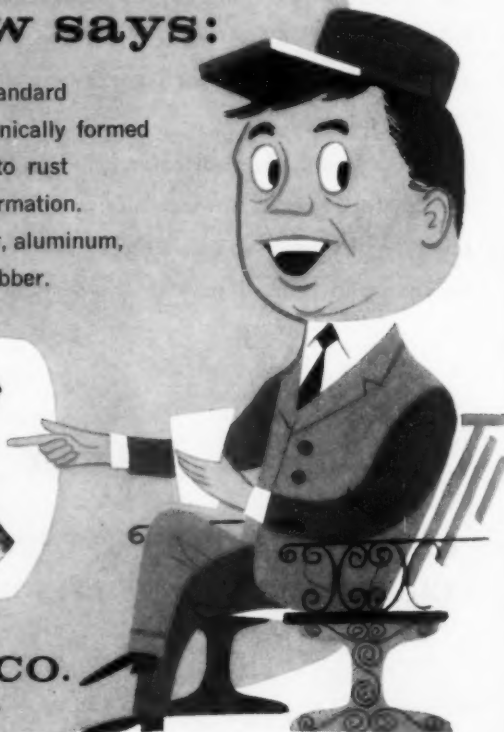
Conductor L. Bow says:

For elbows shaped and tapered to fit any standard size pipe, get **Cincinnati Elbows**. Mechanically formed on fully automatic machinery. No raw edges to rust because they're hot-dipped in zinc after formation. Your choice of size, angle, gauge . . . in copper, aluminum, stainless or galvanized steel. Ask your jobber.



CINCINNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio



Genuine masonry Van-Packer Chimney gives high draft - - is safe even for incinerators

Your heating installation operates best when you install the Van-Packer Factory-Built Masonry Chimney. High draft, provided by Van-Packer's 3" vermiculite-concrete insulating wall, assures this peak furnace efficiency.

Van-Packer's permanent masonry construction enables it to vent even an incinerator safely and efficiently. The $\frac{5}{8}$ " fire clay tile liner withstands over 2100°F., more than enough to resist the heat shocks and high flue temperatures developed by incinerators.

Why not profit on the *entire* heating system by installing the Van-Packer Chimney with your furnace? And because Van-Packer's high draft increases furnace operancy, you save on needless furnace service call-backs.

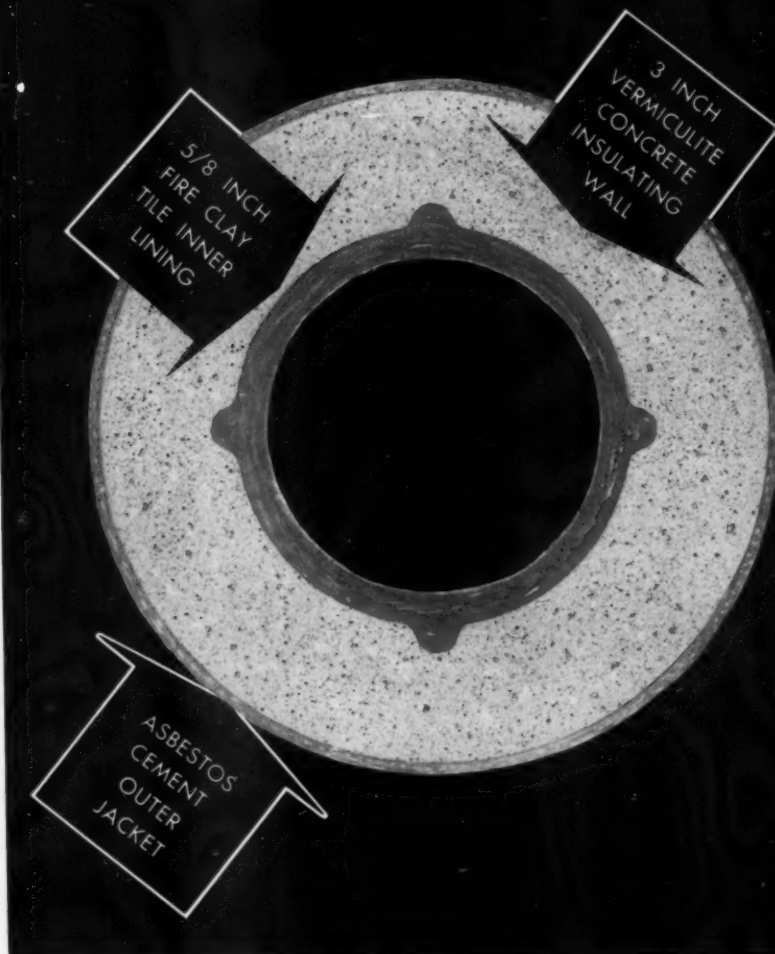
What's more, you'll be giving your customers the finest prefabricated chimney on the market today—the safe, permanent, attractive Van-Packer Factory-Built Masonry Chimney.

No job delays, immediate delivery from your local heating jobber. See "Chimneys—Prefabricated" in Yellow Pages, or write Van-Packer Company for Bulletin RS-1-11.

 **Van-Packer**
FACTORY-BUILT MASONRY
Chimney

Van-Packer Company
Division of The Flintkote Company
P. O. Box No. 306, Bettendorf, Iowa
Phone: 5-2621

Also Manufacturers of
Van-Packer Fire Clay Tile Gas Vent



Thick masonry insulating wall of the Van-Packer Chimney retains heat, provides high draft.



Snap-on housing cap

Brick-design panel housing in red, buff or white

Adjustable aluminum flashing

7" I.D. flue sections of 2100°F.

$\frac{5}{8}$ " fire clay tile liner, 3" vermiculite concrete insulating wall, asbestos-cement jacket.

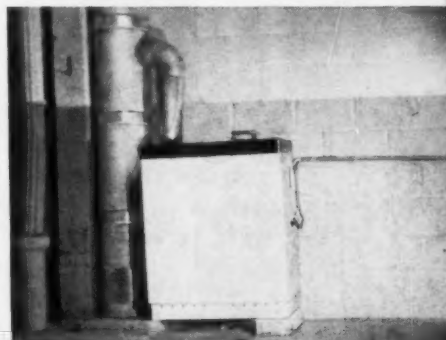
Section joints sealed with acidproof cement.

Aluminum drawband reinforces each section joint.

Support assembly has 4X safety factor—eliminates pier.



UL listed for all fuels, all home heating plants and incinerators, approved by major building codes.



Van-Packer Chimney incinerator installation—can be suspended or pier supported.

Van-Packer Chimneys come completely cartoned for easy handling.



equipment developments *Continued*

ting is provided by push-pull calibrated slide bar, the company states. Larger models have combination draft setters with minimum safety setting. Two weights move together to set draft and automatically stabilize balance, according to the manufacturer.

Air Cooled Unit

"HOMEAIRE" Model FA-20 self contained summer air conditioning unit with built-in louvers for attic installation—York-Shipley, Inc., Dept. AA, 500 Jessop Pl., York, Pa. Capacity is 23,600 Btuh; condenser is air cooled. Six bladed propeller type condenser fan is 16 in. in diameter, has 1400 cfm capacity. Centrifugal evaporator blower, 9 in. in diameter and 5 in. wide, has 700 cfm capacity. Both fans are driven at 1075 rpm by 1/3 hp, permanent split-capacitor motor. Condenser has four rows of fins spaced 10 per in. over face area

of 2.78 sq ft. Evaporator has three rows of fins spaced 12 per in. over total face area of 2.35 sq ft. Installation kit, including 44 ft of 10 × 14 in. glass fiber ducts and 42 ft of 8 × 8 in. trunk ducts, as well as five ceiling diffusers or high wall registers, and a return air grille with filter are also available.

Flange Turning Tool

"AUTO-GUIDE" flanger which automatically follows any edge fed into



it—Lockformer Co., Dept. AA, 4615 W. Roosevelt Rd., Chicago 50. Made in two models to fit the company's

lock forming machines, the unit has capacity of 20 ga metal, turns flange height of 7/32 in. and has forming speed of 16 to 18 fpm. After starting, operator lets material go automatically through machine which turns flange on straight, irregular, inner or outer radii edges.

Copper Tubing

COPPER refrigeration tubing in eight sizes from 1/8 to 3/4 in.—Brass & Copper Tube Div., Triangle Conduit & Cable Co., Inc., Dept. AA, New Brunswick, N.J. Tube is dehydrated, deoxidized, bright annealed. Ends are sealed; tube is produced in 50 ft coils in coded carton, according to the manufacturer.

Welding Torch

DRY TYPE torch designed for "Filerarc" welding in carbon dioxide atmosphere—General Electric Co., Welding Dept., Dept. AA, 1 River Rd., Schenectady 5, N.Y. Interchangeable with standard water

more people today are

Wondaire

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MODEL R
115,000 to 212,000 BTU
Wondaire Oil-Fired Lo-Boy

MODEL H
80,000 to 525,000 BTU
Wondaire Oil-Fired Hi-Boy

MODEL OCF 80
80,000 to 50,000 BTU
Wondaire Special

Wondaire
Horizontal
80,000 to 525,000 BTU

MODEL CFO
80,000 to 525,000 BTU
Wondaire Oil-Fired Counter-Flow

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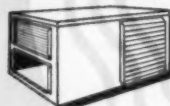
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Most versatile cooling line on the market!
Choice of packaged remote systems . . . or the revolutionary new Polar-Pak waterless self-contained system . . . available for every size and type heating system . . . for every budget.

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All-new waterless self-contained system.



the ONLY unit of its kind that ventilates as well as cools! Installs anywhere indoors—or outdoors!

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finest condenser money can buy! Proved the most cooling power at LOWEST operating cost.

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1801 E. 22nd St., Little Rock

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The Coleman Co., Inc.
250 Sylvester St., So. San Francisco

COLORADO—B. K. Sweeney Co., 1601 23 St., Denver

CONNECTICUT—Roskin Distrib., Inc.
275 Park Ave., East Hartford

D. C.—Noland Co., Inc., 136 K St., N. E., Wash.

FLORIDA—Eckles Distributors
1707 Industrial Blvd., Jacksonville
J. D. Johnson Co., 16 W. Gregory, Pensacola
I. W. Phillips & Co., P. O. Box 400, Tampa

GEORGIA—Appliances, Inc., Box 1612, Atlanta

ILLINOIS—The Coleman Co., Inc.
2201 So. Darst St., Peoria, Ill.
Robert Barclay, Inc., 1234 W. Fulton, Chicago

INDIANA—Great Northern Distrib., Inc.
1117 Maumee, Fort Wayne
Central Supply Co., 210 S. Capitol, Indianapolis
Great Northern Distrib., Inc.
209 College St., South Bend

IOWA—Midwest-Timmermann Co.
114-116 Western Ave., Davenport
Sidles Co., 8 Seventh St., Des Moines

KANSAS—Coleman Heating & Air Conditioning Co.
P. O. Box 2060, Wichita

KENTUCKY—Valley Distrib. Co., 912 Baxter, Louisville

LOUISIANA—Walther Bros. Co., Inc.
1722 Paydras at Willow St., New Orleans

MAINE—Nelson & Small, Inc., 68-78 Union, Portland

MASSACHUSETTS—Bigelow & Dawse Co.
2nd Ave. & A St., Needham Heights

MICHIGAN—Semmler Wholesale Supply Co.
5100 St. Jean, Detroit

MINNESOTA—Kelley-Haw-Thomson Co.
309-349 S. 5th Ave., W., Duluth

MISSOURI—Coleman Htg. & Air Cond. Co.
1219 Union Ave., Kansas City
Hollander & Co., Inc.
3900 W. Pine Blvd., St. Louis
General Wesco Distrib. Co.
P. O. Box 271, MPO, Springfield

MONTANA—Marshall-Wells Co., Box 2092, Billings

NEBRASKA—Sidles Co., 7302 Pacific St., Omaha

NEW MEXICO—Albuquerque Lumber Co.
501 N. First St., Albuquerque

NEW YORK—Roskin Bros., Inc.
1827 Broadway, Albany
Lee Distrib. Co., 845 Washington St., Buffalo
Jericho Distrib., Inc., Route 25, Centereach, L.I.
Sey-Ber Distrib. Co., Inc.
104 W. Division St., Syracuse

NORTH CAROLINA—Southern Appl., Inc.
P. O. Box 2096, Charlotte

NORTH DAKOTA—Minot Coleman Distrib.
Box 969, Minot

OHIO—Miami Valley Distrib., 8 N. Keowee, Dayton
Hughes-Peters, Inc., 1128 Sycamore, Cincinnati
Shuler Distrib., 2114 Woodland Ave., Cleveland
Hughes-Peters, Inc., 111-17 E. Long, Columbus
The Joseph B. Smith Co., 1945 Franklin, Toledo

OKLAHOMA—Paul W. Davis Co.
825 N. W. 2nd, Oklahoma City

OREGON—Western Utilities Supply Co.
1905 N. Williams Ave., Portland

PENNSYLVANIA—The Coleman Co., Inc.
133-43 W. Hunting Park Ave., Philadelphia
L/H Appliance Wholesalers
930 Manchester Ave., Pittsburgh

RHODE ISLAND—Lenz-Knight Co., Inc.
200 Conant St., Pawtucket

SOUTH DAKOTA—L. C. Lippert Co.
506 S. Cliff Ave., Sioux Falls

TENNESSEE—Indoor Comfort Distrib.
520 Van St., N. W., Knoxville
Forsyth-Williams, Inc.
34 N. Lauderdale, Memphis

TEXAS—Amarillo Hardware Co.,
600 Grant St., Amarillo
Paul Davis Co., P. O. Box 10102, Dallas
W. G. Walz Co., 500 San Francisco St., El Paso
South Texas Appl. Corp.
641 S. Flores St., San Antonio
Warren Distrib. Co., 205 Velasco St., Houston

VIRGINIA—R. F. Trant Distrib. Corp., Box 300, Norfolk

WASHINGTON—Western Utilities Supply Co.
P. O. Box 3524, Seattle
Hughes & Co., Inc.
South 119-123 Howard St., Spokane
Marshall-Wells Co., 131 E. Main St., Spokane

WEST VIRGINIA—Van Zandt Supply Co.
1123 Fourth Ave., Huntington

WISCONSIN—Wisc. Heating Distrib.
4715 N. 32nd St., Milwaukee

equipment developments (Continued)

cooled version in its attachment to automatic wire feeder, the torch is rated for operation up to 800 amp. Inverted pyramid tip design deflects spatter. Unit is equipped with tips which can handle wire from 0.045 to 1/8 in. and can be used with adapter for mounting separate from the wire feeder, the company states.

Electronic Air Cleaner

"ELECTRO-KLEAN" electronic air filter for homes, stores, restaurants, etc.—*American Air Filter Co., Inc., Dept. AA, 355 Central Ave., Louisville, Ky.* Dry type unit is mounted



in any convenient location on return air side of forced air furnace or cooling unit; existing duct work can be utilized. Filter is said to trap nearly 90 percent of airborne dirt. Cleaner uses no more current than a 10-w bulb, according to the manufacturer.

Blower Wheel

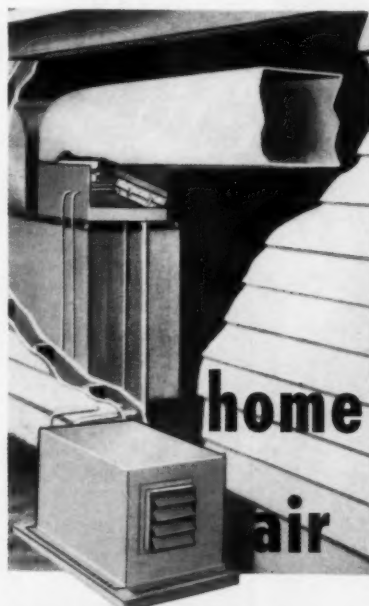
"TAB LOCK" series of 36-blade blower wheels for heating, cooling and ventilating units—*Air Impeller Div., Torrington Mfg. Co., Dept. AA, Torrington, Conn.* Units are in ten models with diameters of 6-5/16, 7-3/32 and 8 in. and in various widths. A 44-bladed model with 10 3/4 in. OD and 1-31/32 in. width is also available in the series. Wheel may be single or double width, steel or aluminum, and with plain, lacquered or zinc plate finish, according to the company.

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AXIAL AND centrifugal flow roof exhauster units with low silhouette,

For Profits' Sake this Year Check

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home air conditioners

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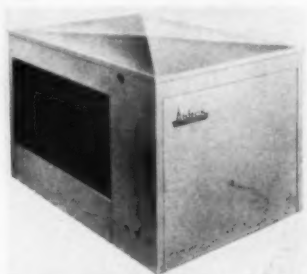
equipment developments

Continued

designed for modern buildings—*Greenheck Fan & Ventilator Corp., Dept. AA, Schofield, Wis.* Units are constructed of heavy gage aluminum with ball bearing type motor, in a variety of sizes. Motor is cooled by outside air; rubber vibration isolators are designed for each size unit and motor speed. Fan blades are also aluminum. Large exit area is designed to reduce exit losses. Centrifugal type is a non-overloading, sparkproof fan.

Condensing Unit

MODEL 1205-1 5 hp air cooled condensing unit, redesigned for compactness in home or commercial application—*Airtemp Div., Chrysler Corp., Dept. AA, 1600 Webster St., Dayton 1, O.* Featured in the 32-5/16 × 36 5/8 in. unit are: condenser coils located



one on each side of unit; single condenser blower; quick response expansion valve; magnetic starter and overload protection and high-low pressure cutout; mild weather control; 5 cylinder sealed radial compressor. Unit is in three models: 220-v, 3 phase; 208-v, 3 phase; or 230-v, single phase.

Plenum Humidifier

MODEL 400 PLENUM humidifier for warm air furnaces—*Herrmidifier Co., Dept. AA, Box 145, Neffsville, Pa.* Rated at 1/2 gph, unit features: all metal construction, single moving part, externally mounted motor, 110 cfm, adjustable floating valve and mechanical atomization of water to be forced into air stream. Unit operates under full range of plenum temperatures, the company reports. Motor is fan cooled. Housed in stainless steel cabinet, unit measures 10 3/4 × 8 3/8 × 11 3/4 in., weighs 14 lb.

Electric Motor

SMALL FRACTIONAL horsepower, permanent split capacitor motor for air conditioning and air handling application—*Marco Industries, Inc., Dept. AA, Third & Franklin St., Womelsdorf, Pa.* Model D-4 is 4 5/8 in. in diameter, for in-wheel blower application. Unit is available in ratings from 1/150 hp up to 1/5 hp; 115, 230 or 208 volts; 50 or 60 cycles; 2, 4, 6 or 8 poles.



COMMUNIQUE:

**WATERLOO SCENE OF TOTAL VICTORY
BY WARM AIR HEATING-SHEET METAL DEALERS.**

**MEET NO OPPOSITION IN AIR CONDITIONING
INSTALLATIONS.**

67

central residential cooling systems (year 'round and add-on) sold in Waterloo, Iowa during 1955.

ALL

67 sold by warm air heating-sheet metal dealers.

45

licensed dealers sold 1720 furnaces. Of these 45, 12 were KEY dealers who sold 75% of the furnaces AND 88% of the cooling systems.

AGAIN IT'S PROVED. If you have a stake in residential air conditioning, you aren't "flying blind" when you advertise in American Artisan.

For one thing, you get the field's only 100% paid (ABC) circulation among those who count most. The top-level warm air heating-sheet metal dealers. They are the ones doing the bulk of today's heating AND residential air conditioning, as this and dozens of other city surveys show. (Write for the full Waterloo report, based on actual installation permits.)

What's more, American Artisan excels editorially — in both quality and quantity — and leads by far in advertising volume. Clearly, it's the No. 1 book for reaching your No. 1 sales outlet. Call on us for the FACTS of the matter.

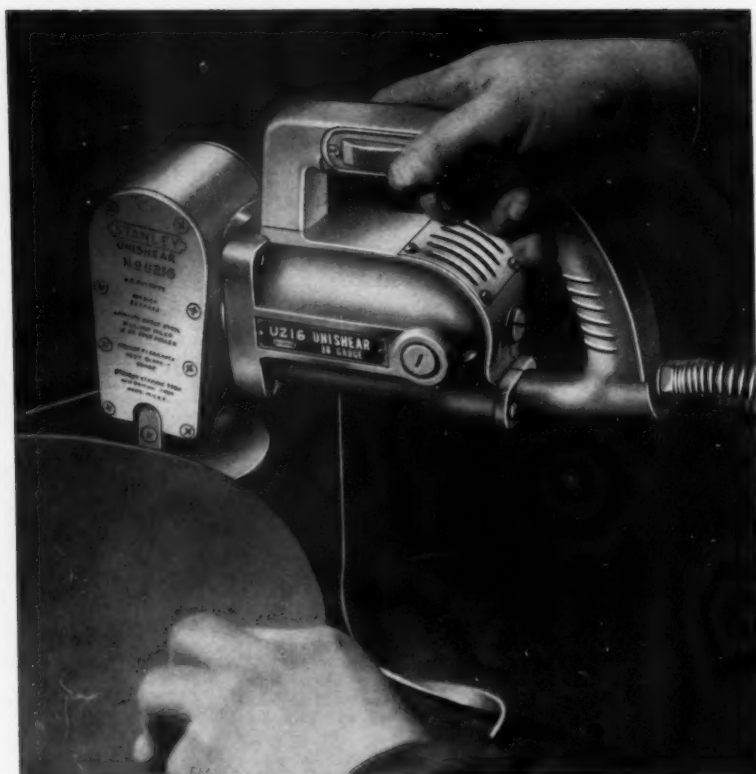
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KEENEY PUBLISHING COMPANY

AIR CONDITIONING HEADQUARTERS

6 N. Michigan Ave., Chicago 2, Illinois





For fast cuts and easy handling— *Hand shears can't compete with* **UNISHEAR**

The best man in your shop couldn't match a pair of hand shears against the speed and accuracy of Stanley's U216 Portable Electric Unishear.

First, he'd be beaten in length of cut. In one minute, Unishear U216 trims 20 feet of 14-gauge mild, hot rolled steel; other models cut from 18 to 6 gauge.

And he'd take a licking on accuracy, too. Unishear's improved blade action cuts straight lines,

curves, angles and notches smoother, more accurately than any hand method. The operator finds it easy to handle — self-feeding jaws do the cutting.

To lower production costs, save fabricating time and make cutting jobs easier, get a Stanley Unishear for your shop. Choose from six portable and three stationary models. For more information write Stanley Electric Tools, 574 Myrtle Street, New Britain, Conn.

STANLEY



equipment developments (Continued)

Single or multiple speed units are in 2 pole, 3,400 rpm; 4 pole, 1600 rpm; 6 pole, 1050 to 1100 rpm; 8 pole, 750 to 800 rpm models.

Dot-Dash Template

ARCHITECTURAL or mechanical drawing template which enables draftsman to draw dot and dash lines with rapid stroke of pencil or ball-point pen—*Dot-N-Dasher*, Dept. AA, Box 668, Cresskill, N.J. Template will



produce six different lines: long dash, short dash, long dash and dot, short dash and dot, long dash and two dots, and short dash and two dots. Hardness of pencil determines density of line. Template is 0.0075 in. thick plastic.

Heating, Cooling Line

"CLIMASTER," "PATRICIAN" and "Challenger" series of furnaces and heating-cooling units in gas- and oil-fired models—*York Corp., Subsidiary of Borg-Warner Corp.*, Dept. AA, Roosevelt Ave., York, Pa. "Climaster" series permits addition of cooling circuits at installation or later. Gas-fired models range from 70,000 to 200,000 Btuh; oil-fired models are from 84,000 to 125,000 Btuh. Both are in highboy, counterflow, horizontal and lowboy models. "Patrician" units, in highboy and counterflow types, range from 75,000 to 175,000 Btu input and 84,000 to 140,000 Btu output. "Challengers" are in highboy, counterflow and lowboy types, ranging from 70,000 to 200,000 Btu input and 80,000 to 125,000 Btu output. "Patrician" series includes cooling side with twin compressors.



TORIDHEET Model JC
Oil Burner with
Durable Multi-Jet Blender

Model JC Pressure-Atomizing
Oil Burners, Equipped with
Durable Multi-Jet Blenders,
Power these Fuel-Thrifty
TORIDHEET Furnaces



Model OGU
Oil-Fired Boiler



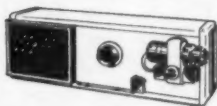
Model OGA-C
Counterflow Furnace



Model OGA-"Hi-Boy"
Furnace



Model OGA Oil-Fired
Winter Air Conditioner



Model OGA-40 Horizontal Furnace

TORIDHEET'S Durable Multi-Jet Blender

TORIDHEET'S new *Durable Multi-Jet Blender*, though of very simple design, is the ultimate in efficient blending of air with oil for complete combustion—no matter what percent of catalytic oil is used. TORIDHEET'S Multi-Jet principle provides outstanding fuel economy plus extreme quietness—with no pulsation in even the smallest heating units.

COMPLETE UNITS AND CONVERSION BURNERS—GAS OR OIL

Wall-Flame Oil Burners • Gun Burners • Wall Flame Boilers, Furnaces and Water Heaters • Gun Fired Boilers and Furnaces • Gas Conversion Burners and Gas Fired Furnaces • Low-Boys • Hi-Boys • Counterflows • Comfort Cooling Equipment

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Another



OUTSTANDING INSTALLATION OF

SONOIRDUCT

FIBRE DUCT

PERMANENT HOUSING PROJECT
FORT BENNING, GA.

Project includes 100 units. 80 two-story buildings and 20 one-story buildings. SONOIRDUCT Fibre Duct was used as supply lines in the slab for the perimeter heating systems for the first floor in the 80 two-story buildings. SONOIRDUCT was used in the slab for return lines in the 20 one-story buildings.

SONOIRDUCT Fibre Duct is made especially for gas and oil fired, slab-floor perimeter heating systems. It is lightweight, easy to handle and levels quickly. Aluminum foil lined. 23 sizes—2" to 36" I.D., up to 50' long. SONOIRDUCT meets and exceeds all F.H.A. criteria and test requirements. Free installation manual available upon request.

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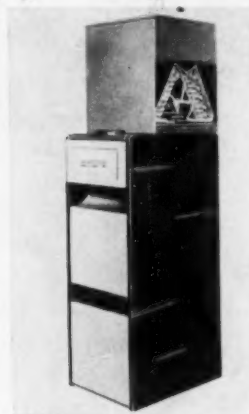
AKRON, IND. • LONGVIEW, TEXAS • BRANTFORD, ONT. • MEXICO, D. F.

equipment developments

(Continued)

Gas-, Oil-Fired Furnaces

GAS-FIRED highboy and counterflow furnaces in 75,000, 100,000 and 125,000 Btu input sizes, and oil-fired unit rated at 78,400 Btu at bonnet—Henry Furnace Co., Dept. AA, Me-



dina, O. All units are designed for higher air delivery needed to operate cooling coil. Blower capacity can be increased as needed. Gas-fired units are 54 and 64 in. high, in widths of 16, 20 and 22 in. Oil-fired model is 20 X 26 X 62 in.

Truck Cargo Boxes

CARGO BOXES for Chevrolet $\frac{1}{2}$ and $\frac{3}{4}$ ton pickup trucks, increased 8 in. in length to 98 in. total, thereby increasing load carrying capacity about 9 percent—Chevrolet Motor Div., General Motors Corp., Dept. AA, Detroit 2. Width of 50 in. and height of 17 $\frac{9}{16}$ in. remain same as previous models. Volume of box is now 49.8 cu ft. Box size allows for 8 ft lengths with 2 in. clearance for handling, the company points out.

Air Mixing Units

ALUMINUM DUAL DUCT air mixing units designed for corrosion resistance—Buensod-Stacy, Inc., Dept. AA, 45 W. 18th St., New York 11. Unit is basic component in company's dual duct installations in which hot and cold air are forced through building in separate ducts and mixed in each room to meet individual re-



THE FIRST STANDARD REFERENCE FOR CORRECT VENTING!

The new Metalbestos "Safety System" Gas Vent Tables set the standard for efficient gas venting by telling you the practical, correct answers to your gas vent questions.

- ▶ Will the gas vent operate correctly?
- ▶ What's the simplest way to install a gas vent?
- ▶ How much vent pipe do I need for the job?
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The Metalbestos "Safety System" Gas Vent Tables give quick, accurate answers to venting questions such as these. That's why the new Metalbestos Gas Vent Tables are a necessary tool for gas dealers, builders, installers, inspectors, and utility men.

Send today for your free copy of the new Metalbestos "Safety System" Gas Vent Tables. Write Dept. B-4



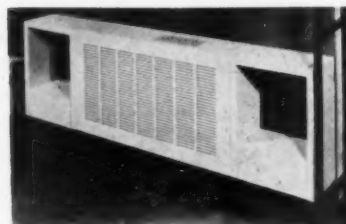
METALBESTOS DIVISION
WILLIAM WALLACE COMPANY - BELMONT, CALIF.

Stocked by principal jobbers in major cities. Factory warehouses in Akron, Atlanta, Dallas, Newark, Des Moines, Chicago, New Orleans, Los Angeles

equipment developments (Continued)

Cooling Line

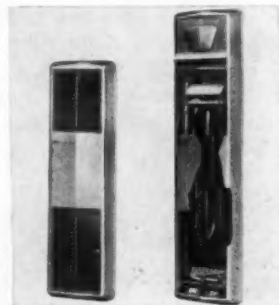
EIGHT NEW cooling units, four in high velocity models and four in fan coil types—York Corp., Subsidiary of Borg-Warner Corp., Dept. AA, Roosevelt Ave., York, Pa. Featured



are modular units with built-in bookshelves, foot high modular units and a unit containing double coil. Three high velocity units are wall mounted. "Foot-High" model is designed for offices or rooms with floor-to-ceiling glass walls. Double coil provides greater secondary coil capacity for given volume of primary air than on previous models.

Gas-Fired Wall Heaters

SIX GAS-FIRED wall heaters designed to fit between wall studs on 16 in.



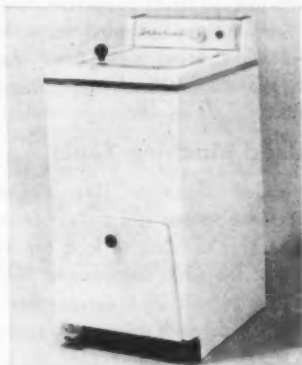
centers—Coleman Co., Inc., Dept. AA, St. Francis & Second St., Wichita 1, Kans. Four single wall units including two with rear register attachments are rated from 25,000 to 36,000 Btu input; dual wall units in two models are rated at 50,000 and 62,500 Btu. Single wall models may be installed with or without blower or rear grille; with dual wall models, up to 75 percent of the heated air may be directed to either room.

equipment developments

(Continued)

Gas-Fired Incinerator

"IMPERIAL" GAS-FIRED home incinerator with combustion air drawn downward through top of the unit—*Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind.* Along with exterior design improvements, line features "suspended burning" in which charge

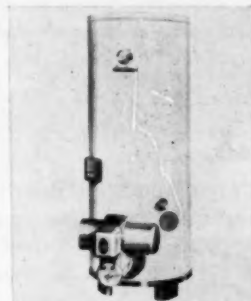


of rubbish or garbage is suspended in pool of air for increased drying action and to provide ample secondary air to support combustion. Foot pedal loading door operator is also featured. Gas burner has complete safety shutoff, automatic timing of burner cycle

and stainless steel flame spreader said to afford six points of flame impingement. Non-aerated pilot burner prevents clogging by dust and lint. Smoke and odor from burning refuse are drawn into "Turbo Chamber" where high heat and flame promote additional combustion before products enter flue.

Oil-Fired Water Heater

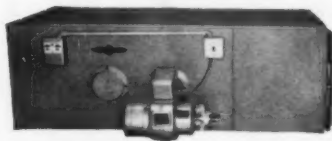
"FLUID HEAT" OIL-FIRED 30 gal water heater designed for quick recovery and automatic storage—*John Wood Co., Heater & Tank Div., Dept. AA, 100 Washington*



St., Conshohocken, Pa. Unit is said to deliver 120 gph of 160 F water. Self-contained unit has magnesium rod; entire tank is bathed in hot combustion gases. Immersion thermostat regulates water temperatures.

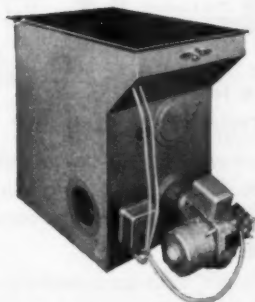
YOU CAN'T BEAT G/A WARM AIR UNITS

Unit for unit, General Automatic offers you the very best buys in warm air heating. Here are a few top sellers:



HORIZONTAL FURNACE

Oil-fired, 85,000 to 300,000 Btu.



FLOOR FURNACE

Oil-fired, 85,000 Btu.



LOW BOY

Oil-fired, 85,000 to 250,000 Btu.



Quality Heating Since 1923

Order one of these quality units
for your next installation! Write
for details!

COUNTERFLOW (not shown)

Oil-fired, 100,000 Btu.

GENERAL AUTOMATIC PRODUCTS CORP.

2300 Sinclair Lane

Baltimore 13, Maryland

new literature . . .

Residential Controls

POCKET SIZE CONTROLS HANDBOOKS for installers and servicemen contain questions and answers pertaining to the installation and operation of residential controls. Published in five volumes, the handbooks cover: Volume 1, thermostats, limits, relays and electric heating; Volume 2, gas controls; Volume 3, oil controls; Volume 4, coal burner controls; and Volume 5 (to follow later in the year), residential air conditioning. The handbooks, measuring 5 X 8 in., are spiral bound to lie flat when open—*Minneapolis-Honeywell Regulator Co., Dept. AA, 2726 Fourth Ave., S., Minneapolis 8, Minn.*

Electric Tools

PORTABLE ELECTRIC TOOLS are described in catalog No. 104 (30 pages, 10 cents). Covered are band saws, drills, sanders, polishers, etc.—*Porter-Cable Machine Co., Dept. AA, 1714 N. Salina St., Syracuse 8, N. Y.*

Electric Motors

ELECTRIC MOTOR condensed price list (Form 943) dated January 28, 1957 supersedes issue of September

29, 1956. Prices, ratings and other data are presented in tabular form—*Century Electric Co., Dept. AA, 1806 Pine St., St. Louis 3.*

Stainless Steel

DATA SHEET entitled "Allegheny Ludlum Stainless Steel Type 201" (four pages) gives detailed information on chromium-nickel-manganese stainless steel, including analysis range, resistance to corrosion, resistance to oxidation, physical properties and mechanical properties. Sections are included on welding characteristics and fabrication—*Allegheny Ludlum Steel Corp., Dept. AA, 2020 Oliver Bldg., Pittsburgh 22.*

Buying Used Machine Tools

BOOKLET entitled "How to Buy a Used Machine Tool," written in question and answer form, deals with such considerations as what to look for when inspecting a used tool; the pros and cons of buying "as is," reconditioned or rebuilt equipment; and the guarantees that come with each type of purchase—*S & S Machinery Co., Dept. AA, 140 53rd St., Brooklyn 32.*

Pipe Crimper

ILLUSTRATED SUPPLEMENT to bulletin 78 B introduces model 500 compound leverage pipe crimper for re-



**"I have more leisure
since the TRIPLETS arrived"**

An Electro-air electronic air cleaner installed with any forced air furnace or air conditioner reduces house cleaning chores to an occasional light dusting.

Electro-air "home" units are manufactured in nine models, both horizontal and vertical air flow, with capacities from 800 to 4,800 cfm. They're moderate in price and profitable to install!

All parts including selenium rectifiers are guaranteed for five years.

WRITE FOR CATALOG C-10-C



ELECTRO-AIR CLEANER COMPANY, INC.

1285 REEDSDALE STREET, PITTSBURGH 33, PA.



You know those rare days when everything checks? Air smells good. Food tastes terrific. Even the old face looks good in the mirror. Today can be that kind of day. Just do two things. Call your doctor for a thorough medical checkup for cancer. Then write out a check—a nice fat one—to the American Cancer Society, and send it to "Cancer" in care of your local Post Office.

AMERICAN CANCER SOCIETY

ducing the diameter of smoke and conductor pipe. The tool is provided with vinyl plastic grips designed to prevent hand slippage—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo, N. Y.*

Portable Shape Cutting Machine

THE ADVANTAGES and applications of "No. 4 Monograph" portable shape cutting machine are described in an eight page catalog (form ADC 660B). Cutting range, weights, dimensions and other specifications are shown—*Air Reduction Sales Co., Div. of Air Reduction Co., Inc., Dept. AA, 150 E. 42nd St., New York 17.*

Stainless Steel Fabrication

FORTY PAGE MANUAL gives information on techniques for fabricating stainless steel. Request form Adv. 590A, "How to Fabricate Republic Enduro Stainless Steel"—*Republic Steel Corp., Dept. AA, 3100 E. 45th St., Cleveland 27.*

Conversion Chart

WALL CHART of conversion factors includes common conversions such as in. to centimeters, watts to hp, and cu ft to liters. Also included are such conversions as microns to meters and quintal to lb that are difficult to locate in reference manuals—*Precision Equipment Co., Dept. AA, 3716 Milwaukee Ave., Chicago.*

Power Roof Ventilator

BULLETIN 550 describes "Centrilator" centrifugal type power roof ventilator designed to give static pressures up to 2 in. According to the company, it is well suited for applications where ductwork or hoods may impose considerable resistance as well as for light duty applications without ductwork—*Clarage Fan Co., Dept. AA, North & Porter Sts., Kalamazoo 16, Mich.*

Heavy Duty Press Brakes

FOUR PAGE BULLETIN, No. 57PR, covers "Series D" heavy duty steel press brakes. The bulletin describes all the principal features and gives specifications and capacities of 40 standard sizes—*Dreis & Krump Mfg. Co., Dept. AA, 7400 S. Loomis Blvd., Chicago 36.*

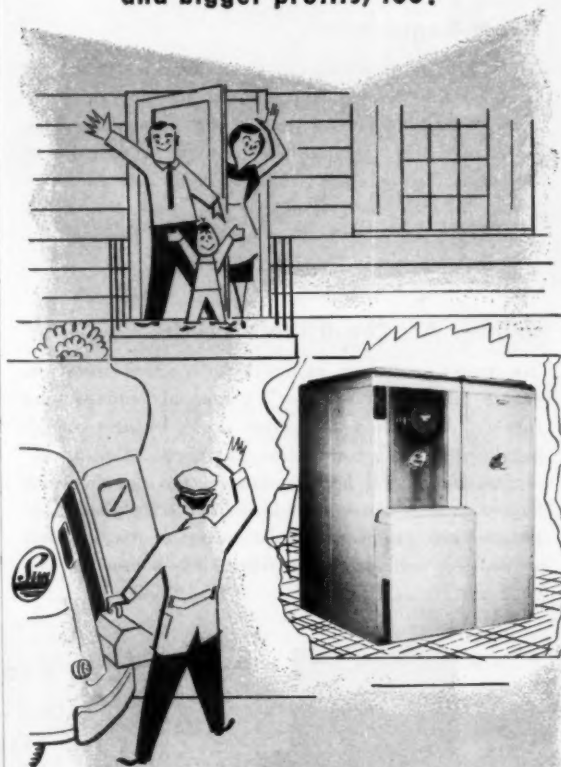
Legal Structures for Small Firms

LEAFLET gives pointers on how to choose the most suitable legal structure — single proprietorship, partnership, or corporation — in establishing or conducting a small business. The leaflet considers all three

Sure way

TO MAKE LASTING FRIENDS

and bigger profits, too!



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No matter how large or small your business may be . . . its continued success depends upon *satisfied customers!* Patten's high-quality line of furnaces and air conditioners have the built-in advantage of *satisfaction guaranteed . . .* your most valuable sales feature. Sell SUN Fuel-Master . . . and make LASTING FRIENDS with all your customers.

Patten . . . The complete line that meets any heating or cooling requirement. Write for full details today!

The Quality Line at Competitive Prices



new literature

(Continued)

structures from the standpoint of tax laws and other factors. Ask for "Choosing the Legal Structure for Your Firm"—*Small Business Administration, Lafayette Bldg., Washington, D. C.*

Draft Regulators

TWO PAGE ILLUSTRATED CIRCULAR describes barometric draft controls for use with oil-fired heating equipment. The circular illustrates design and construction features of "RD" regulators from 6 to 32 in. in size. Residential models are available in 6, 7, 8 and 9 in. sizes, while commercial models are offered in 12, 14, 16, 18, 20, 24, 28 and 32 in. sizes—*Wm. Steinen Mfg. Co., Dept. AA, 45 Bruen St., Newark 5, N. J.*

Winter Air Conditioning Unit

SIX PAGE CIRCULAR, punched for catalog insertion, covers oil-fired "Lo-Hi-Boy" winter air conditioning furnace. A cutaway illustration shows features including "Ceramiflex" combustion chamber, "Acoustifoil" cabinet liner, steel heat exchanger, and double width blower. Cooling may be added by the installation of summer air conditioning coils on top of the unit and condensing unit located outside of the house. Ask for

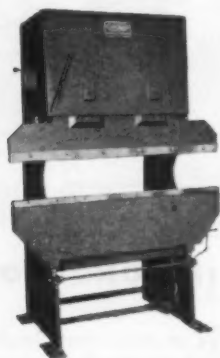
bulletin 811—*Armstrong Furnace Co., Div. of National Union Electric Corp., Dept. AA, 851 W. Third Ave., Columbus 8, O.*

Heating, Cooling Equipment

CONSUMER BROCHURE explains in non-technical terms the functions of the various components of a heating plant. Included are brief descriptions, specifications and line drawings of winter air conditioning equipment including lowboy, highboy, counterflow and horizontal forced air units; gravity furnaces; combination heating and cooling units; and summer air conditioning equipment. Also available is a 100th anniversary booklet telling the story of the company's growth and development over the past 100 years. Featured is a section on the firm's "golden line" of products—*Mueller Climatrol, Dept. AA, 2001 W. Oklahoma Ave., Milwaukee 1, Wis.*

Electronic Air Cleaners

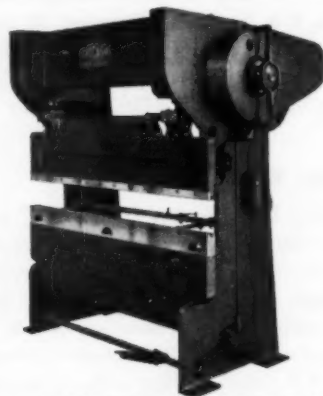
CATALOG No. E-81 covers electronic air cleaners for home installation. Also available is catalog No. E-82 describing cleaners designed for use in small commercial establishments. Eight models are offered ranging in capacity from 1000 to 9600 cfm. They are designed to fit furnaces ranging in size from 100,000 to 960,-



Model 131 Press Brake
11 Ton Capacity

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new literature

(Continued)

000 Btu, or central air cooling units from 3 to 25 ton capacities—*Trion, Inc., Dept. AA, 1000 Island Ave., McKees Rocks, Pa.*

Ventilating Blowers

CATALOG describes the features of "Vent-All" self-contained ventilating blower units. Performance data is included—*Master Fan Corp., Dept. V-AA, 1323 Channing St., Los Angeles 21.*

Summer Air Conditioning Units

"HIDE-AWAY" air cooled summer air conditioners are described in a four page illustrated circular. Requiring only 6 sq ft of floor space, the unit may be installed in attic, basement, utility room, garage or closet. Model BAC-250 is designed to cool five or six average rooms. Smaller units are available for two to four rooms—*Burnham Corp., Dept. AA, Irvington, N. Y.*

Cooling Towers

SERIES "WMT" cooling towers are described in bulletin C-H 5625. Included are a table of dimensions for 13 standard models, data on selection, and charts detailing nominal capacity tons refrigeration—*Dryer-Hanson Div., National-U.S. Radiator Corp., Dept. AA, 3301 Medford St., Los Angeles 63.*

Ventilators and Range Hoods

CATALOG covering 1957 "Kitchen-Aire" ventilators and range hoods presents two new models of ventilators as well as two hood styles. It also introduces the "Stewart-Aire 100" fan and fan-in-hood combination—*Stewart Industries, Inc., Dept. AA, 320 E. St. Joseph St., Indianapolis 2, Ind.*


Air Moving Equipment

CIRCULAR illustrates turbo blower featuring "Perfect Circle" design with spun cone air-flow chamber. Also illustrated are roof ventilators, centrifugal fans, belt driven duct fans, and material handling exhausters—*General Blower Co., Dept. AA, 8618 Ferris Ave., Morton Grove, Ill.*

Heating and Ventilating Controls

HOW TO DETERMINE the selection of controls for heating and ventilating systems in schools and colleges is discussed in non-technical language in booklet F 7773 (16 pages). Illustrated with photographs and diagrams, the booklet covers the control of direct fired

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NATIONAL LOCK's
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Crating Bolt

pre-assembled... securely staked

will not turn with vibration

● You reduce shipping damage... minimize enamel chippage... when your appliances are firmly secured to crates with the new National Lock crating bolt. Bolt is sturdily staked to specially-formed hardened spring steel washer. Washer lugs bite into the wood, preventing bolt from turning. Also available as a nut and washer staked assembly... with lugs to prevent loosening. (Leading manufacturers have proven that loosening torque is greater than tightening torque.) Put National Lock crating bolts to the test in *your* shipping room NOW.

METAL THREAD-CUTTING FEATURE SAVES CRATING TIME, CUTS COSTS

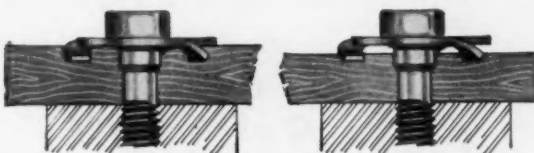


Bolt is self-threading. Can be quickly and easily turned into metal foot or base of appliance. Nut is not required.

lugs will not let go...

BEFORE SHRINKAGE

AFTER SHRINKAGE



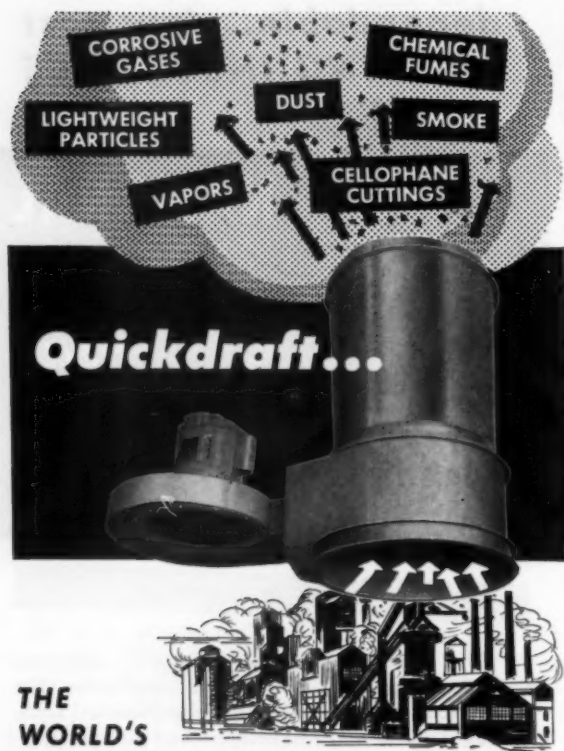
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FOR INDUSTRY, Quickdraft excels in venting paint booths... abrasives... corrosive gases... noxious fumes... high temperatures and moisture. Its blower operates in clean or outside air. It eliminates down-time for cleaning and replacing fan blades. It improves industrial venting and reduces maintenance costs!

FOR INSTITUTIONAL AND COMMERCIAL BUILDINGS, Quickdraft efficiently vents heating plants, water heaters and incinerators at roof level. It saves the cost of building unsightly tall stacks.

FOR RESIDENCES, Quickdraft makes low, cold and erratic chimneys function. On and off with the fire, Quickdraft maintains constant draft required for efficient and economical combustion of all fuels. It eliminates pulsating or chattering, puffing, smoking and sooting.

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Capacities of 56 standard and heavy duty models (6 to 30 inches diameter)
... 8,400 CFH to 1,005,960 CFH
... greater capacities on special order.

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- ☐ Residential Heating Plant

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Individual _____ Title _____
Street _____
City _____ Zone _____ State _____

new literature

(Continued)

warm air systems, zone systems and unit ventilators as well as the application of control centers.—*Barber-Colman Co., Dept. AA, 1300 Rock St., Rockford, Ill.*

Registers and Grilles

CATALOG No. 57 covers air conditioning registers and grilles. Illustrated are baseboard diffusers, floor diffusers, registers, return air faces, and grilles—*Rock Island Register Co., Dept. AA, 2435 Fifth Ave., Rock Island, Ill.*

Gas-Fired Furnaces

BROCHURE entitled "Inside Facts on Gas-Fired Winter Air Conditioners" shows basement, utility, counter-flow and horizontal models fully assembled and in cutaway views illustrating construction and assembly details. All major components are also illustrated. The back cover contains a reference chart which gives complete dimensional and rating data for the entire line—*American-Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18.*

Machines for Light Metal Work

POCKET SIZE illustrated booklet 201 (32 pages) catalogs briefly a line of manually operated machines and tools for light sheet metal work. For complete information on any particular item, references are made to specific company bulletins. Also available is booklet 202 (20 pages) which summarizes data on power operated machines for light sheet metal work—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo 11, N. Y.*

Multizone Cooling

"FLEXAZONE" engineering manual (12 pages) covers cooling units for multizone applications. Featured is a cutaway view on the front cover keyed for identification of components—*Drayer-Hanson Div., National-U.S. Radiator Corp., Dept. AA, 3301 Medford St., Los Angeles 63.*

New Home Promotion

"BLUEPRINT FOR SALES" for heating dealers to use in working with builders on new housing development promotion has been revised to include a wider range of current merchandising material. Included are: suggested methods of handling publicity, advertising and promotion of the new home; samples of advertising layouts, publicity releases, direct mail pieces and new home brochures; sign and display ideas; information on the company's cooperative newspaper advertising mat service; and a pamphlet giving information on

new literature

(Continued)

various methods of "house trading"—*American-Standard Plumbing and Heating Div., Dept. AA, 40 W. 40th St., New York 18.*

Installing, Servicing Oil Burners

OIL BURNER reference manual contains 19 lessons covering the installation and servicing of domestic oil burners. Lessons cover such subjects as oil burning principles; heating systems; firing rates and how to figure them; combustion chambers; wiring; control systems; installation; cleanups and checkups; and service tips. Entitled "The Installation and Servicing of Domestic Oil Burners," the book contains 360 pages including 105 pages of illustrations. Copies are priced at \$5—*Arco Publishing Co., Inc., Dept. AA, 480 Lexington Ave., New York 17.*

Flexible Air Duct

FOUR PAGE CIRCULAR (form 591) describes various types of flexible air duct used for air conditioning, fume and dust exhaust, and corrosive fumes. In-service photographs illustrate product versatility—*The Air Duct Div., The Wiremold Co., Dept. AA, Hartford 10, Conn.*

Portable Tools for Metalworkers

PORTABLE TOOLS for the metalworking industry are listed in a 50 page illustrated catalog. Included is information on grinders, sanders, saws and saw blades, shears, polishers, etc. Also described is the company's free advisory service covering the working of new materials including plastics, laminates and composition products—*Skil Corp., Dept. AA, 5033 Elston Ave., Chicago 30.*

Electronic Air Filter for Homes

ADVANTAGES of "Electro-Klean" electronic home air filter are described in a four page consumer brochure. According to the company, the unit catches dirt as small as 1/100,000th of an in. such as tobacco smoke particles—*American Air Filter Co., Inc., Dept. AA, 215 Central Ave., Louisville 8, Ky.*

Plenum Humidifier

"MODEL 400" plenum humidifier for warm air heating systems is described in a two page illustrated data sheet. A cutaway view illustrates features including externally mounted motor, stainless steel housing and compact design—*Herrmidifier Co., Dept. AA, Box 145, Neffsville, Pa.*

* FIRST LINE

Extended-Surface

HEAT EXCHANGERS

ASK THE AEROFIN MAN

Specify Aerofin and you specify high efficiency, long service life and low maintenance and service costs.

Take advantage of Aerofin's unequalled experience, production facilities, and materials-testing and design research—of Aerofin's complete engineering service at the plant and in the field.



Aerofin makes extended heat surface exclusively—not as a by-product, not as a side-line. Sold only by manufacturers of fan-system apparatus. List on request.

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Best Answer to Your

DRAFT PROBLEMS

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SHUR-FLO
draft inducer to
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DRAFT CONTROL PRODUCTS

Automatic Draft Controls

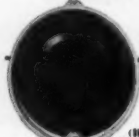
When it comes time to recommend, specify, buy or install draft control equipment for small space heaters or your biggest commercial installation, look first to Walker, world's largest factory devoted exclusively to the manufacture of automatic draft controls. Over 25,000,000 now sold for coal, oil, and gas prove Walker Controls are the best you can buy for quality, dependability, and fuel-saving performance.



Type Z



Type 24B



(IND.)
Type 5B



Walker Royal
Purple Model

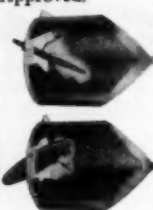
WALKER A Complete Line of Draft Control Products

Walker Draft Controls, available in 3" to 48" sizes, help keep chimneys dry, stop pulsation and smoking, eliminate soot and odors; give trouble-free performance even under most adverse conditions. Walker Controls are made with perfect balance. Knife-edge bearings are incorporated into the inner side of sturdy frame. Underwriter Approved.

WALKER

BBG DOUBLE SWING CONTROL

Walker's BBG Double Swing Control regulates updraft, dissipates downdraft in gas-fired equipment. Unique relief bar arrangement for flawless performance. Stainless steel knife-edge bearings. Corrosion resistant. Long, heavy gauge collar holds the draft control safely out of the flue gas stream.



WALKER

VENTURI-TOP CHIMNEY TOP

For heating (gas, oil, or coal) and ventilating. Directional vane keeps throat facing wind. Sloping-throat prevents back drafts, intensifies air flow over chimney opening for maximum draft effectiveness. Unit rotates on friction-free, hardened-steel ball bearing.



WALKER 30 Years of Draft Control Experience!

WALKER MFG. & SALES CORP.

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WALKER MFG. & SALES CORP. 1730 Penn Street, St. Joseph, Mo.
Please rush me information on the Walker items checked.

- ☐ Automatic Draft Regulators for small installations
- ☐ Industrial draft regulators for schools, buildings, plants
- ☐ Walker SHUR-FLO Draft Inducer
- ☐ Royal Purple Draft Controls for Home Heating
- ☐ Venturi Top Chimney Cap

NAME _____

ADDRESS _____

CITY _____

STATE _____

we hear that . . .

► OVER 200 DEALERS and wholesalers attending the fourth annual customers' conference of Round Oak Co., Inc. and Peerless Corp. in Indianapolis last month heard features of the manufacturers' lines of 1957 heating and air conditioning equipment described and were given practical tips on advertising, promotion, selling, installation, servicing, accounting, time payment plans, and business management. A "Customer Council" — new members of which will be elected in future years — was appointed; the panel will be asked to comment on Peerless and Round Oak plans for the future, and to suggest ideas based on their field experience. The two-day conference wound up with a plant tour.

► NOW IN OPERATION at Kaiser Aluminum & Chemical Corp.'s Ravenswood, W. Va. works are cold rolling facilities, annealing furnaces, slitters, shears and other auxiliary equipment for turning out light gage aluminum sheet. Two plants are being constructed at Ravenswood — a reduction plant and a rolling mill. Upon completion in 1958, the Ravenswood Works will provide employment for some 4000 workers, according to the company.

► THE THOR POWER TOOL CO. has transferred its executive offices from Aurora, Ill. to the Prudential building in downtown Chicago. Another new facility is the branch office recently opened in Richmond, Va. with Kenneth V. Bennett as manager. The Richmond office will serve most of Virginia, part of West Virginia and all of North Carolina.

► WHEELING CORRUGATING CO. has opened a new warehouse at 1785 Kenny Rd., Columbus, O. to serve customers in parts of Indiana, Kentucky and Ohio. Products such as galvanized sheets, roofing, metal lath and expanded metal will be stocked.

► THE CLEVELAND DISTRICT OFFICE of Niagara Machine & Tool Works is moving to a new location at 6333 York Rd.

► RECIPIENTS of the American Institute of Management's "rating of excellent management for 1956" include General Electric Co., Minneapolis-Honeywell Regulator Co., Rockwell Mfg. Co., The Trane Co., Carrier Corp., Rheem Mfg. Co., American Air Filter Co., Inc., and the Coleman Co., Inc. Companies are rated on every function of management and not just on profits, according to the institute. They are studied from the point of view of their economic justification as well as their treatment of share owners, customers and the public. An audit committee makes

the final ratings, using a point schedule which requires 7500 of a possible 10,000 points for excellence.



VIC AND JOE VOGEL examine "Thermo-Base" action display at recent International Heating and Air-Conditioning Exposition held in Chicago

► THE THERMO-BASE DIV., Gerwin Industries, Inc. has appointed Vogel & Associates its representative in the Chicago-Illinois-western Indiana-St. Louis areas.

► WALTER F. ROCKWELL and Woodford D. Miller were elected to the board of directors of Robertshaw-Fulton Controls Co. at a recent special board meeting. They will fill vacancies left by the resignations of Chauncey N. Mynderse and Clarence W. Robertshaw.

► CONTROLS CO. OF AMERICA is building a 7000 sq ft addition to the Nijmegen, Holland plant of its subsidiary, Controls Maatschappij Europa N. V.

► DUC-PAC, INC. has licensed the Aero Tool Works Ltd., Toronto, Canada to manufacture Duc-Pac trunk and stack duct.

► THE NORKY MFG. CO. recently installed a fan in a bindery company where, because unbound pages were stacked in most parts of the shop, it was necessary that drafts be avoided entirely. To meet this problem, the Norky company installed a low speed, large bladed fan in a horizontal position some 8 ft above the floor. According to the company, this type of installation effects an "upward and outward" air circulation pattern that provides cooling but creates no objectionable drafts. After the big suspended type fan had been installed, the bindery was able to dispose of a number of small portable fans which had previously been used and which had been placed under benches to cut down draft. Since the initial installation, the bindery has purchased several additional fans of the same type for other sections of the building.



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**NATIONAL
METAL FABRICATORS**

2138 South Sawyer Avenue, Chicago 23, Ill., Phone: Blshop 7-4255



L. P. DAVIS (left), treasurer, Century Engineering Corp., receives citation from King R. Palmer of the U. S. Savings Bond Div., U. S. Treasury Department

► CENTURY ENGINEERING CORP. has been awarded a citation by the U. S. Treasury Department in recognition of the high rate of employee participation in a recent U. S. savings bond drive. About 75 percent of the company's employees are now enrolled in the payroll savings campaign.

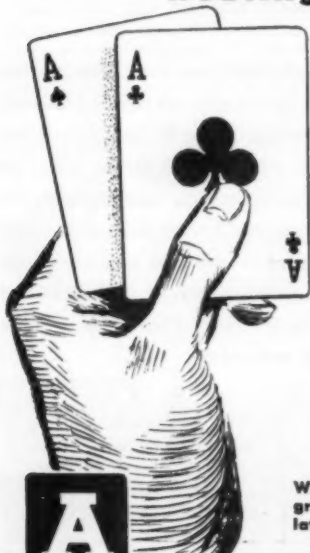
► MINNEAPOLIS-HONEYWELL REGULATOR CO. has moved its midwest regional sales office and distribu-

tion center to a new building in Lincolnwood, Ill., just northwest of Chicago. The new building, located at 7350 N. Lincoln Ave., contains some 21,000 sq ft of floor space.

► JOHN J. THURSTON recently completed his 25th year with Wayne Home Equipment Co., Inc. and was welcomed into the company's 25-year club at a dinner attended by the 12 other members of the club. Mr. Thurston, eastern sales manager, was presented with an engraved watch by E. R. Wagner, company vice president, during the initiation ceremonies.

► A BUSINESS MANAGEMENT program is being offered to heating and cooling dealers by the Plumbing and Heating Div of American-Standard. Included in the program is a motion picture covering such subjects as the keeping of adequate records, discounting of bills, product pricing, overhead control and the maintenance of sufficient profit margins. Also available are "packaged" business management clinics, each one complete with plans, booklets and other necessary working materials. Subjects include Profit and Overhead, Credit and Collections, Use of Records, Installment Financing, Truck Inventory Control, Business Organization, Insurance Problems and Legal Problems. Prints of the film will be made available through American-Standard sales offices for showings to local dealer

You can't beat this pair for combination heating and cooling perimeter systems...



Try this combination in just one home with a basement and you'll be convinced of performance and economy far superior to any warm air system.

- Hot and cold zones are positively eliminated.
- Operates efficiently at all times, regardless of whether draperies or curtains are in open or closed position.

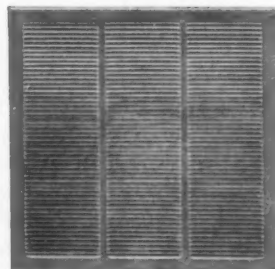
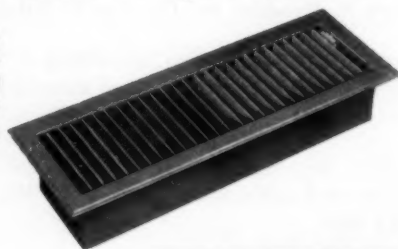
STYLE P-28 FLOOR DIFFUSER

Available in six sizes from 2 1/4 x 10 to 4 x 14.

STYLE A-05 FLUSH RETURN AIR GRILLE

Available in sixty one standard sizes.

We make a complete line of registers, diffusers and grilles for all types of heating and air conditioning installations. Write for your copy of our catalog.



The **A & A REGISTER COMPANY**

8327 CLINTON ROAD • CLEVELAND 9, OHIO • ATLantic 1-6166

meetings or meetings held by individual distributors for their customers. The management clinics will be offered through local company representatives for use and distribution in management institutes organized by distributors and dealer associations.

► **JOSEPH T. RYERSON & SON, INC.** has expanded its St. Louis operations by leasing property across the street from its present St. Louis plant. The additional facilities will be used for warehousing Reynolds aluminum coil, sheet and plate.

► **HIGHLIGHTING** the first national sales meeting of the Phillips Drill Co. was the presentation of awards to top salesmen by R. E. Dieterich, president. First prize — a two-week vacation in Acapulco, Mexico — went to John Armbruster, Ohio representative. Archie Pine, New York representative, received a \$500 U.S. savings bond and Robert Burns, Maryland, was awarded a \$250 savings bond.

► **MILT CHINITZ** of Saddle Brook, N. J. recently was presented with the annual award of the Wm. Steinen Mfg. Co. for the outstanding national sales achievement of the year. Mr. Chinitz is the first winner of the award, a plaque inscribed "Steinen President's Award for Sales Achievement."

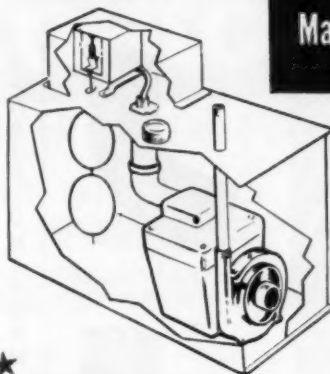
► **THE COLISEUM PARK APARTMENTS** now being built in New York will be equipped with 1350 individual room air conditioners furnished by the Airtemp Construction Div. of the Chrysler Corp. The units — $\frac{1}{2}$, $\frac{3}{4}$ and 1 hp sizes — will be built into the walls of all living rooms and bedrooms.

► **DOVER MFG. CO.** has opened an East Coast assembly plant in Greensboro, N. C. The new plant will have warehousing and shipping facilities in addition to an assembly line.

► **THE FIRST OF A SERIES** of 17 Worthington Corp. air conditioning field service meetings was held recently at the Hotel Georgia in Atlanta. Installation and servicing of packaged, residential and central station equipment was the subject of the meeting which was attended by approximately 30 wholesalers and dealers. An annual event, the field service meetings reach about 600 wholesalers and dealers during the course of a seven week nationwide tour.

► **THE AIR REDUCTION PACIFIC CO.**, a division of Air Reduction Co., Inc., has begun construction of a \$7,500,000 air separation and liquefaction plant at Basett, Calif. a few miles from Los Angeles. The new plant will serve the metal fabricating industries in the California, New Mexico and Arizona areas.

Little Giant



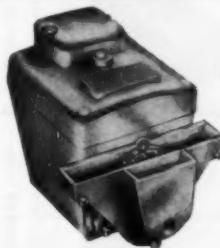
for
the
AIR-
CONDITIONING
Market



CONDENSATE UNIT For Refrigerated Units!

- Hermetically sealed Little Giant Recirculating Pump for trouble-free self-lubricating operation.
- Positive displacement switch with float control, double pole switch for complete circuit break plus a three-conductor cord available.
- Sturdy metal tank corrosion resistant.
- Small and Compact.
- Quiet in operation.
- Completely automatic.

PUMPS FOR ANY AIR CONDITIONING APPLICATION



VAPORIZER

For Industrial
and Commercial
Evaporative
Coolers

- Little Giant Vaporizer Pump, hermetically sealed in oil, self-lubricating.
- Die-Cast aluminum impeller saturates evaporator pads with fine, vapor-like spray for greater temperature drop.
- Small and compact.
- Economical to operate.
- Available for 110 volt 60 cycle or 220 volt single phase current.
- No expensive piping necessary.



Write for free catalog and price list today!

Little Giant PUMP COMPANY

Division of Little Giant Vaporizer Company, Inc.

5101 Classen Blvd., Oklahoma City 18, Okla.

F. Dieckmann

TRADE MARK

Conductor Elbows - Conductor Shoes

Made in angles from 10 to 90 degrees

"An Angle For Every Obstacle"



Plain Round



Round Corrugated



Square Corrugated
Style "A"



Square Corrugated
Style "B"

ALWAYS
UNIFORM
IN
SIZE
AND
ANGLE
O
SIZES
1"
TO
6"

Made in 28, 26 and 24 gauge steel hot dipped galvanized after formation. Also Copper, Aluminum and Stainless Steel.

Catalog Available — Ask Your Jobber

THE FERDINAND DIECKMANN CO.

Established 1871

1300 Harrison Avenue, Cincinnati 22, Ohio

put
Extra-Profits
in your
pocket
with



New production machinery of our own exclusive design, now enables us to produce button type Elgen All-Tite vane runners in continuous coils, effecting a savings in your cost per job.

COILED ELGEN ALL-TITE VANE RUNNERS MEANS . . .

- **Less Waste!** Waste pieces due to short ends are a thing of the past. Vane runner metal is coiled in 100 foot lengths, you just pull out the exact footage needed.
- **Easier Storage!** Each coil weighs approximately 50 lbs. and is packed in a box 28" x 28" x 5". Box fits easily under bench or against wall.
- **Easier Handling!** No loose pieces lying around to get in the way or collect dirt.
- **Unrolls absolutely flat!** Vane runner metal emerges from the box at bench height . . . absolutely flat . . . ready for use.

TWO MORE ENGINEER-APPROVED ELGEN PRODUCTS THAT SAVE YOU TIME AND MONEY



ELGEN SILENT DUCT

... for forming "flexible" duct connectors. A one piece metal to material unit, packed in coils, unrolls absolutely flat. Makes on the spot work a cinch.



ELGEN DAMPERSET

... for multi-blade dampers, parallel or opposed. Most perfect damper hardware developed.

ELGEN PRODUCTS ARE SOLD THROUGH LEADING JOBBERS EVERYWHERE.

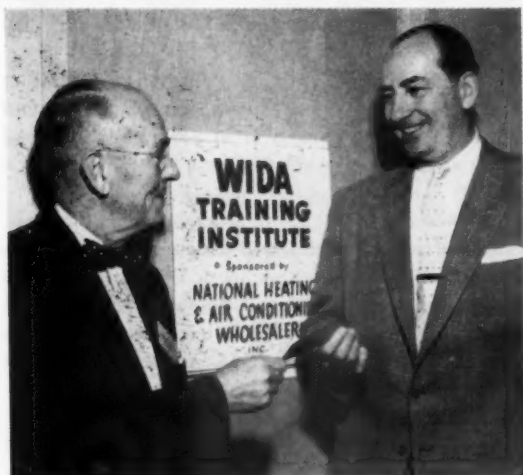
Write today for free catalog and "spec" sheet!

ELGEN MANUFACTURING CORP.

41-34 39th Street, Long Island City 4, N. Y.



wholesaler doings...



HENRY W. DINSMORE (left) sales manager for Chicago operation of the G. W. Berkheimer Co., receives \$100 scholarship to WIDA (Wholesalers Integrated Development Approach) training institute from Tom Delaney, vice president and manager of the Waterbury Heating Supply Co., St. Paul. Mr. Dinsmore was one of 22 top heating and cooling executives who recently attended the institute conducted by Minneapolis-Honeywell Regulator Co.

► **TWENTY-TWO OWNERS**, sales managers, and other executives of heating and cooling wholesale firms recently went "back to school" to take a training course designed to help them teach their own salesmen how to sell. The five-day course was conducted in Minneapolis by the Minneapolis-Honeywell Regulator Co. for the National Heating & Airconditioning Wholesalers, Inc. Walter Baak, sales manager of Honeywell's wholesale division, said the school was designed to increase creative sales throughout the industry by teaching company officials how they can apply basic sales principles to their own heating and air conditioning sales problems. Materials were provided for use in organizing and conducting similar training programs in their own companies.

► **SID HARVEY** recently opened a new facility at 1801 N. Castle St., Baltimore, which will stock the firm's full line of replacement parts for oil and gas burners.

► **THE F. J. KERSCHER CO.**, Manitowoc, Wis. has taken on the distribution of the Stewart-Warner Corp.'s heating and cooling equipment. The Kerschler firm will serve dealers in the Fox River Valley, Sheboygan, Manitowoc and Green Bay areas as well as the upper peninsula of Michigan.

► **THE FRIEMEL-LOVE CO.**, 6609 Clayton Rd., St. Louis has been named a distributor for Allis-Chalmers

now! A NEW CONCEPT IN SOLDERING IRONS -the NEW

Insto-gas®

INTERNALLY FIRED TORCH with AIR RING heat control



For the first time • A torch that meets all the requirements of the sheet metal trade!

Easy Finger Tip Adjustment • Gives the right soldering temperature for each job.

Concentrated heat • Enables light coppers to do heavy continuous work.

Melts solder • 90 seconds after lighting.

Continuous heat • Available all day.

Saves time • No stopping to change irons or replenish fuel.

Saves money • Operates up to 200 hours on a standard Insto-Gas Cylinder.

Highly Portable • Connects to cylinder with any length Insto-Gas hose.

Safe • No charcoal or gasoline fire hazards.

Two Models • No. 10-S-2 (2 lb. per pr. coppers) and No. 20-S-5 (5 lb. per pr. coppers)

APPROVED

By



and



SOLDERING IRON HEATER

Clean, instant, easily controlled heat for conventional type irons is obtained with Insto-Gas No. 1500 Soldering Iron Heater. Keeps points out of flame and reduces need for tinning. Fits either cylinder or bench type Insto-Gas furnaces.

Use the complete Insto-Gas line — Torches — Furnaces — Cylinders. Available at better Industrial and Plumbing and Heating Wholesalers everywhere or mail coupon today.

INSTO-GAS CORPORATION, DETROIT 7, MICH.

AA

Please send information on Soldering Iron Torches and Heaters.

Name _____

Address _____

NOW there are 14 Vaporite MODELS

... a size and type Humidifier for every furnace installation.

EVERY MODEL TESTED AND PROVED

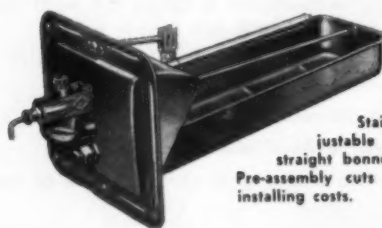


SERIES 555
Fits any straight side
warm air furnace.

Corrosion resistant, stainless steel vapor pan 4" x 15". Completely assembled for quick and easy installation.

New copper overflow on Model 555C.

- No extras to buy
- No parts to assemble
- No extra holes to cut
- No tricky mounting

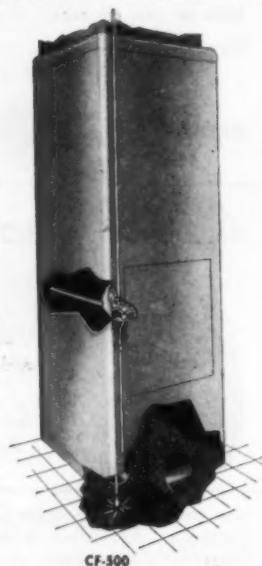


SERIES 577
Stainless steel. Adjustable to sloping or straight bonnet furnaces. Pre-assembly cuts labor time and installing costs.

EVERY MODEL WITH NEW SENSITIVE THERMOSTAT CONTROL TO ASSURE BALANCED HUMIDITY

LOW COST FIELD-TESTED COUNTERFLOW STYLE

- Designed especially for basementless houses with perimeter heating.
- Complete assemblies for furnaces with concrete floor plenums or with crawl space plenums.
- Installs in minute on exterior of furnace casing. All parts furnished.



CF-300

WRITE FOR CATALOG AA-4

AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa.

wholesaler doings

(Continued)

motors and pumps. Area served includes five counties in western Illinois and four in eastern Missouri.

► **BROD AND MCCLUNG, INC.**, 9800 S. E. McBride Ave., Portland, Ore. has been appointed a distributor of Dravo heating equipment in parts of Oregon and Washington.

► **MARCO SALES, INC.**, with headquarters in St. Louis, Mo., has been appointed a distributor to cover the St. Louis metropolitan area, southern Illinois and eastern Missouri by the Unitary Equipment Div., Carrier Corp. Principals of Marco Sales are Kenneth A. Hoffman, president, and Gilbert L. Marks, secretary and treasurer.

► **THE A & H SUPPLY CO.**, a new wholesale supply service, has been opened at 701 E. First St., Dayton. The company will supply parts and components for heating and cooling equipment throughout the greater Dayton area. Executives are Paul Hopper, president; Paul J. Amann, vice president; and Thomas J. Amann, secretary-treasurer.

► **MORE THAN 500 VISITORS** attended the recent open house held by A. A. Duckett, Inc., Camden, N. J. distributor, in celebration of its move to new and larger quarters. The new building, located at Crescent Blvd. and Haddon Ave., houses engineering, service, warehousing and accounting facilities as well as general offices.

► **CENTRAL QUEENS ELECTRIC SUPPLY CO.**, 92-35 166th St., Jamaica, L. I., N. Y. has been appointed a distributor of Rheem Mfg. Co. heating and cooling products. Officials of the Central Queens firm are Harry Berken, president; William Berken, vice president; Mort Simmerman, manager of residential air conditioning; and Julian Laub, manager of commercial air conditioning.

► **HEAT, INC.** recently moved from Fitchburg, Mass. to new headquarters at Nashua, N. H. To celebrate the move, the Nashua wholesaler held a day-long sales meeting and open house attended by 80 dealers. Heat, Inc. now has some 13,000 sq ft of space for warehousing, general office and service school.

► **AUTOMATIC HEATING SUPPLY**, General Electric distributor in the Springfield, Ill. area, recently concluded a sales contest for 34 dealers in Illinois, Iowa and Missouri. First prize — a 2½ carat diamond ring — was won by W. B. Black, Automatic Engineering Co., Danville, Ill. Second prize was a mink stole, which was won for Mrs. Sherman Snively by her husband, a Hoopeston, Ill. dealer.



Standardized **PIPE DUCT FITTINGS**

*Manufactured from Prime
Lock-Forming Galvanized Steel Sheets*

Your dependable source of supply for air conditioning and heating DUCT and FITTINGS is the Maxwell Steel Company, a leader in the sheet metal industry of the Southwest for over a quarter of a century.

MASCO pipe and fittings have been standardized and are capable of fulfilling the requirements of the most complicated layout. This standardization provides faster and more efficient service and installation.

Quality of materials used in MASCO pipe and fittings is reflected in the finished product which has no rough edges. Production line methods of fabrication result in accurate fittings of installations.

A wide variety of sizes of pipe, duct and fittings makes it easy for you to obtain from MASCO all of the pre-fabricated materials you need for radial, plenum or perimeter systems. Installation sketches and other data in the complete MASCO catalog are helpful to both suppliers and contractors.

Write for Complete Catalog

MAXWELL STEEL COMPANY

P.O. DRAWER 230

FORT WORTH 1, TEXAS

**every
furnace,
boiler,
and
air
conditioning
cleaning
problem
answered
by**



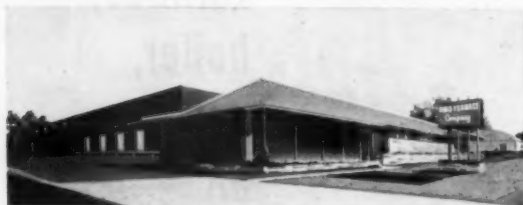
This man could have been using inadequate equipment, but he's not. His boss knows that PREMIER's complete line of vacuums and tools is designed to satisfy the needs of any cleaning operation efficiently and economically.

Why not let PREMIER help you in your job? Send for free details today!

Gordon L. Bowman, General Sales Manager
The PREMIER Company, Dept. 404
755 Woodlawn Ave., St. Paul 1, Minnesota • MIDway 9-7002
35 Gerrard St. West, Toronto 2, Canada

Please rush me free details on PREMIER furnace, boiler, and air conditioning cleaning equipment and FREE information on how I can cut maintenance costs by choosing the right machine for my job!

Name _____
Address _____
City _____ State _____



FROM ITS NEW WAREHOUSING and office facilities Ohio Furnace Co., Inc. will serve heating and cooling dealers in 45 Ohio counties

► OHIO FURNACE CO. recently moved into new headquarters located at 1003 Kinnear Rd., Columbus. To apprise customers of the move, the firm sent out giant size post cards carrying a full color illustration of the new building.

► TO HELP DISTRIBUTORS secure dealers, the Kalamazoo Furnace & Appliance Mfg. Co. has set up a "Flying Squadron" composed of members of its field sales staff. Each member of the unit is assigned a red and white station wagon displaying company signs both in the front and the rear. When a new distributor is appointed, members of the squadron load up their station wagons with cutaways and displays of company

products and visit leading dealers in the distributor's territory to demonstrate selling features. Frequently they are accompanied on these trips by members of the distributor's sales force.

► WASHINGTON WHOLESALE, INC., 3515 V St., N.E., Washington, D.C. has been named to handle distribution of Amana air conditioners in the District of Columbia and surrounding counties. Saul Greber is vice president and secretary of the Washington firm.

► CAM-STAT, Inc. has established a wholesaler exchange agency organization, comprising 125 wholesaler locations in the United States and 25 locations in Canada. The members of this organization will stock controls for replacement sales to dealers and will handle the exchange of in-warranty controls.

► ACAR SUPPLY CO., Philadelphia wholesaler, recently held a district sales meeting for dealers in cooperation with Typhoon Air Conditioning Co., Div. of Hupp Corp. Speakers included Mark E. Mooney, Typhoon vice president in charge of sales and Maurice Firestone, eastern regional manager.

► JAMES B. CLOW & SONS, INC., Chicago, has been named to distribute cooling products manufactured by the Day & Night Mfg. Co.

STACKED SHEET CUTTING SAVES COSTLY LABOR HOURS

Bett-Marr's amazing 3-wheel band saw is especially designed for sheet metal work and will cut 50 to 70 stacked galvanized sheets. Its 24 inch throat accommodates large sheets, and it is ruggedly built for trouble-free performance.

Quickly adjustable blade speeds from 100 to 3000 FPM allow easy cutting of many materials* without blade chatter. This versatile saw will friction-cut stainless steel, up to 12 gauge, with no distortion. Perfect blade control assures smooth radius and straight line cuts. Bett-Marr costs so little it will pay for itself quickly in any shop.

LOW COST 2-WHEEL SAW OUTPERFORMS COSTLY SAWS

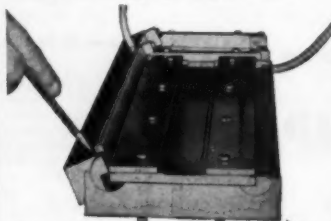
Bett-Mar Model 14SM, shown below, will do everything its big brother (Model 24S) will do, except accommodate the larger sheets. In actual operation, side by side, it has outperformed saws costing 6 times as much. Model 14SM has a 13½ inch throat,



as compared to the 24 inch throat of the larger model. It has the quickly adjustable blade speeds, from 100 to 3000 FPM, for cutting wood, metal, and plastics without blade chatter. Like its big brother, it is especially designed for stacked sheet metal cutting. Both saws have wheels designed so that band cannot slip off.

BETT-MARR TOOL FOR 24" INSIDE BENDS

The new, larger cheek bender makes bends up to 24 inches. Perfect bends along the entire length are assured by a two-way trunnion that keeps the bending bar in position at the starting point. The adjustable plate can be set for bends of ¼" to ¾". Capacity is 24 gauge but 20 and 22 gauge spacers are available. Shipping weight: 77 lbs.



Write for information or ask your distributor



*Bronze, copper, steel castings and forgings, wood and plastics.

MODEL

24S—
3 wheel
band saw
with 24"
throat.
Height 61",
depth 44",
22" wide,
table
20" x 22".

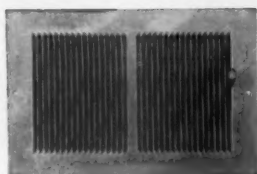


Cuts
50 to 75
stacked
sheets

Bett-Marr Mfg. Co. HOPKINS, MINNESOTA

REGISTERS

the new
1957
KRUEGER
DESIGN-AIR
LINE



#300 — MULTI-LOUVER
SIDEWALL REGISTER

GIVES YOU BIGGER PROFITS

GRILLES

Successful dealers everywhere are using our products now. The new Krueger Design-Air Line is a complete, high-quality line, and it's the biggest profit line on the market today... because... it's priced right to give you bigger profits.

Write or wire for name and address of your nearest Krueger jobber and our new 36 page catalog.

DIFFUSERS



#200 ROUND
CEILING DIFFUSER

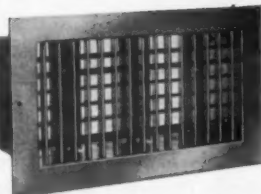
6" to 14" SIZES
BUTTERFLY DAMPER &
INSTALLATION RINGS

KRUEGER

Air Conditioning Corp.

19 E. RILLITO · TUCSON, ARIZONA

"Design-Air" is a complete line of Grilles and Diffusers for the Residential Field plus Double-Deflection Registers and Diffusers for the Commercial and Air Conditioning Fields.



#880 O. B. D.
4-WAY DEFLECTION
WITH OPP. BLADE

NOW

SELL MORE · MAKE MORE
SAVE WORK · CUT EXPENSES
REDUCE STOCK INVENTORIES

sell and specify

A-lum-O-Aire

permanent dry-type
FILTERS

For All Warm-Air
Furnaces and
Winter-Summer
Air-Conditioners



Standard 1" and
2" sizes for easy
replacement and
to match. Special
sizes to order.
Shown in
white.

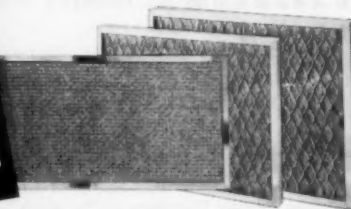
BEST BET for peak sales faster turnover · easier servicing!

Here's the filter that practically *guarantees* fast-action, "register-ringing" filter merchandising! Features that *help* you sell, *plus* an established demand, make it a real volume-builder.

You'll *sell* more because the market is already primed and educated on the economy and superior efficiency of new *permanent* filters. You'll make more because the new "A-lum-O-Aire" pricing policy lets you realize a better return while you're meeting and *beating* competition!

What's more, "A-lum-O-Aire" is a natural tie-in with your present service operations. You gain better control of your service accounts — and add new ones as you go along! Better yet, you save time, effort and expensive material costs required by out-dated filter cleaning methods.

for
DOMESTIC
COMMERCIAL
and
INDUSTRIAL
APPLICATIONS



Sounds fine, so far! But what about "minimum quantities," *quotas* and stock requirements? *That's* where "A-lum-O-Aire" tops them all! You *buy* only what you can *sell* and you stock only what you *NEED*! And, you can forget *sizing* problems.

Safe, clean and economical, "A-lum-O-Aire" needs no messy oils or adhesives to catch dirt, dust or lint particles. Revolutionary "A-lum-O" Aluminum Wool does *ALL* the filtering; saves work and worry — washes clean in a jiffy with cold water. Rustproof and fireproof. Approved by Underwriters' (Class 1). Costs less per clean filter than any other and they can be cleaned as often as necessary without sacrifice of efficiency.

Attention Distributors: Exclusive territories in several selected areas still available. Write for details, today!

Carey

Electronic Engineering Co.

METAL WOOL DIVISION

Dept. A-27

1880 Clifton Avenue · Springfield, Ohio



**TIME SAVING
E-Z-ON
DAMPER REGULATORS
PERMIT
INSTANT ASSEMBLY**

(Shown—head piece of #27 E-Z-ON)

**It's the little things that
make the Big difference!**

Advanced design of E-Z-ON damper regulators permits on-the-job Assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

E-Z-ONS PROVED MORE PROFITABLE

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

M. A. GERETT Corp.
724 W. Winnebago, Milwaukee, Wis.

Stocked in CANADA by
THERMIDAIRE CORP.
7-9 Cumberland Street, Toronto

STYLE & SIZE
Famous E-Z-ON standard design No. 27
Solid end tail piece, threaded head piece and wing nut — $\frac{3}{8}$ " bearing.

Superior E-Z-ON
"Snap-Tite" Design No. 29
Tail piece with retractable snap end bearing, threaded head piece and wing nut — $\frac{3}{8}$ " bearing.

WHITNEY TINNERS HAMMERS



Riveting Hammers — Polished T-12 Black B-12 Weight head 12 oz. Setting Hammers — Polished T-18 Black B-18 Weight head 18 oz. One piece head and handle. Leather grip.

NO. 2 PUNCH



Capacity $\frac{5}{16}$ " hole thru $\frac{1}{4}$ " iron. Length 23". Weight 14 lbs. Depth of throat 1-11/16". Punches and dies from $\frac{3}{32}$ " to $\frac{1}{2}$ " by $\frac{1}{64}$ ".

Write for catalog and see
your local jobber.

W. A. W. HITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

merchandising ideas



CATHY CLIMATROL illustrates health advantages of good heating in Mueller Climatrol's 1957 campaign

► **KEY FIGURE** of the "health and comfort" promotional campaign recently developed by Mueller Climatrol is Cathy Climatrol. In consumer ads as well as other promotional material Cathy, a four year old Chicagoan, points out the advantages of proper heating and cooling, health and comfortwise, the year 'round. Merchandising material available to dealers in the 1957 campaign includes imprinted T-shirts, uniforms, stationery and business cards. Other promotional aids include decals, matchbooks, streamers, window signs, etc. All ads used during the year will be developed into promotion pieces for direct mail use.

► **"OPERATION READY-MADE,"** a new dealer advertising program announced by Peerless Corp., is based on the theme "They've Had a Taste With Window Unit Air Conditioning — Now Give Them the Full Course: Central System Air Conditioning." The program suggests a \$100 trade-in offer for old window units on a new central system. Dealers can dispose of the traded-in units by making arrangements with a local outlet at a flat price, or by running their own local promotions to sell the used equipment, Peerless suggests. Newspaper advertising mats, direct mail pieces and scripts for 5, 30 and 60 second radio spots are available.

► **GIBSON REFRIGERATOR Co.** has prepared a direct mail campaign for heating and cooling dealers consisting of a series of three mailings each addressed to residential and commercial prospects. The company will use names furnished by the dealer or will at the dealer's request compile a list.

► A **"DIAL SPRINGTIME ANYTIME"** series of five-color product folders for consumer distribution has been

BOOKS

on RESIDENTIAL WARM AIR HEATING--AIR CONDITIONING--and SHEET METAL

(Reprinted from articles originally appearing in AMERICAN ARTISAN.)

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S. W. Reid tells how to deal with 'Special Air Conditioning Problems'...how to analyze owners "complaints"...diagnose what's wrong in each case...adjust or replace whatever parts are causing trouble...how to convert an existing gravity system to a comfort a.c. system...how to organize or enlarge an air conditioning department, proper forms and best procedures...how to train installers, service men, etc. Valuable "Know-How" available nowhere else! A wealth of data for all engaged in comfort air conditioning!

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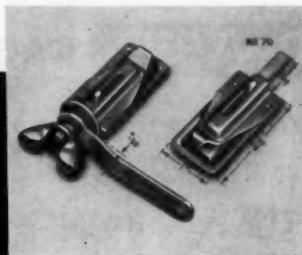
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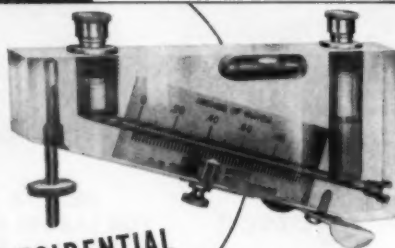
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appointments . . .

► **JOHN A. ROBERTSHAW, JR.** as a vice president of Robertshaw-Fulton Controls Co. Mr. Robertshaw has been in charge of foreign operations since 1952, and was made an assistant vice president in 1954.

► **R. O. KENNEDY, JR.** as sales manager of the Air Impeller Div. of the Torrington Mfg. Co. He was formerly executive vice president of Allen D. Cardwell Electronics Productions Corp.

► **LELAND S. HANSON** as executive sales director for Chase Brass & Copper Co., a subsidiary of Kennecott Copper Corp. Mr. Hanson has been with the company since 1927, has served as sales promotion manager, district manager at New York City and, since 1947, as eastern regional sales manager. Charles A. Festge, currently district manager at Milwaukee, has been named to succeed Mr. Hanson as eastern regional sales manager, while Edward J. Finn of the general sales department in Waterbury, will succeed Mr. Festge as district manager at Milwaukee. All of the above promotions will be effective May 1.

► **LAWRENCE A. PHIPPS** as Texas district manager for Typhoon Air Conditioning Co., Div. of Hupp Corp. His office will be located at 3839 Cedar Springs, Dallas.



Lawrence A. Phipps



Robert H. Wasz

► **ROBERT H. WASZ** as general manager of the San Francisco steel service plant of Joseph T. Ryerson & Son, Inc. He succeeds Wayne D. Dukette. Prior to his recent promotion he was director of the merchandise-procurement division.

► **WILLIAM G. SMITH** as service manager for the Air Conditioning Div., National-U.S. Radiator Corp. Mr. Smith will be in charge of national field servicing of the company's "Capitolaire" and "Unarco" air conditioning products. He will have headquarters at the new central service repair depot in Greenville, Ill.

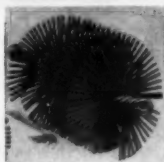
► **J. H. BOWMAN, JR.** as vice president, sales, and H. B. Bowman as vice president, operations, for American Steel Band Co. N. R. Hettman has been named general manager of sales and M. A. Gore will serve

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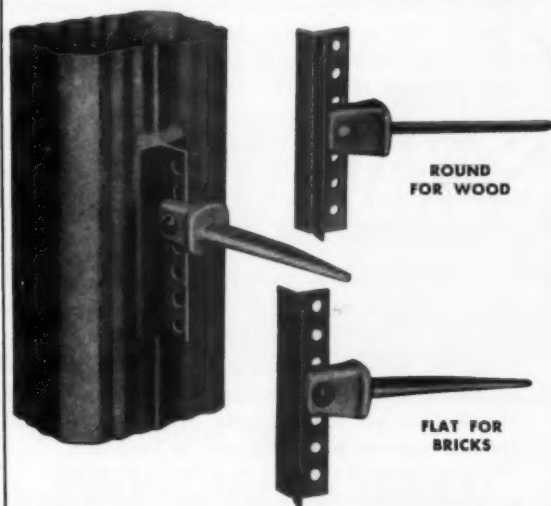
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for every job...
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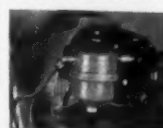
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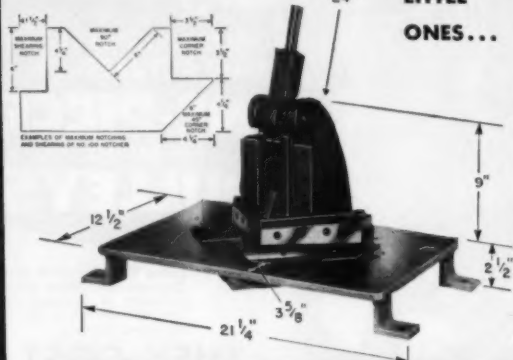
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AUTRONIC PROCESS CONTROL EQUIPMENT

appointments

(Continued)

as sales manager, ventilators. Other appointments include G. K. Bradford as Pittsburgh district manager, T. B. Evans as Cincinnati district manager, and Jim Ammerman and Benton Williams as Pittsburgh sales representatives. C. Gloekler has joined the inside ventilator sales staff.

► OWEN McCOMAS as national manager of new construction sales for the Day & Night Mfg. Co. Mr. McComas joined the firm last year as product promotion manager for heating and air conditioning.



Owen McComas



Robert E. Brown

► ROBERT E. BROWN as sales representative in the New Orleans district for Inland Steel Products Co.

► J. C. FOSSELMAN as sales manager of the Stoker Div. of Canton Stoker Corp. Mr. Fosselman joined the firm in 1951 as assistant sales manager of the Stoker Div. Prior to his present assignment he was office sales manager of both the stoker and pump divisions.

► JOHN A. HOFFMAN as assistant to the general sales manager of The Payne Co. His new duties will include supervision and responsibility for the sales order and customer relations departments.

► H. C. WALLACE as assistant regional sales manager of the southern region for the Air Reduction Sales Co., Div. of Air Reduction Co., Inc. A. C. Pease succeeds Mr. Wallace in the position he previously held—district manager of the Louisville, Ky. sales office. Mr. Wallace has been with the company since 1929. He will continue to headquarter in Louisville.

► LYNN F. JORGENSEN as Chicago sales manager for Rolled Steel Corp. Mr. Jorgenson will also serve as manager of the firm's sales training program.

► MARSHALL F. ROBBINS and L. C. McInteer as regional sales managers for the Residential Div., York-Shipley, Inc. Mr. Robbins will cover New England and New York state. His headquarters will be at Brockton, Mass. Mr. McInteer, formerly vice president and sales manager for the Sterling Air Conditioning Co., will be in charge of the Middle Atlantic region.

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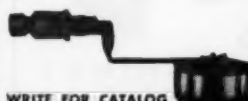
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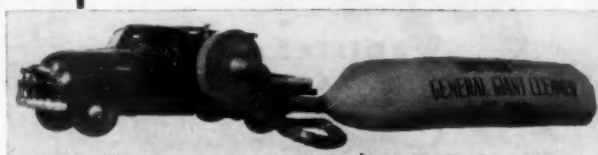
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SCRAPER CO.**
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appointments

(Continued)

► HAROLD B. DONLEY as manager of distribution for the Bryant Mfg. Co.'s Detroit factory branch.

► JOHN THOMAS as a salesman for Lima Register Co. covering the southeastern states. He will handle the sale of diffusers, registers and grilles as well as "Windmaster" draft controls in Florida, Mississippi, Louisiana, Alabama, Georgia, North and South Carolina, and Virginia.

► THE WILLIAM R. FUNK Co., 101 N. 33rd St., Philadelphia as exclusive sales representative in the Philadelphia area for the Binks Mfg. Co. The Funk company will handle the sale of cooling towers.

► ROLAND S. BOREHAM Co. as representative for Marco Industries, Inc. in southern California, southern Nevada and Arizona.

► KENNETH D. COOPER as a sales engineer for Mor-Sun Limited, Waterloo, Ontario.

► THE FRIEMEL-LOVE Co., 6609 Clayton Rd., St. Louis 17 as sales representative for Marlo Coil Co. Territory to be served includes St. Louis, eastern Missouri and southern Illinois.

► THEODORE L. SMITH as a sales representative for the Field Control Div., H. D. Conkey Co. Mr. Smith, head of the Theodore L. Smith Co., will cover Virginia, Maryland, Delaware, eastern Pennsylvania and Washington, D. C. He has offices at 501 Mathieson Bldg., Baltimore and 412 Albee Bldg., Washington, D. C.

► ASSOCIATED THERMAL PRODUCTS, INC., 419 Fourth Ave., New York City as sales representative for Modine Mfg. Co.'s heating and cooling products in the New York territory.

► FRED RICHARDSON as southern division sales manager for Farr Co. He will have headquarters in New Orleans. Ken DeBaun, a former sales engineer, has been promoted to eastern division sales manager and will headquarter in New York City. Ken Baker was named sales engineer in charge of the Washington, D. C. office and Andrew Gourley was appointed western division sales manager with headquarters in Los Angeles. E. L. Williams, formerly advertising manager for Houston Tool Co., has joined the firm as advertising and sales promotion manager.

► M. J. MCCAUGHEY as regional sales manager of the Tuthill Pump Co. He will have charge of the sales organization in Wisconsin and Minnesota as well as parts of Illinois, Iowa and Missouri.

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clamps, or bolts and
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For fastening slips or seams
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moon" through 3 thicknesses
of 18-ga. steel. No hammer-
ing or flattening out to fast-
en slip to the duct.

COMPLETE LINE OF SHEET
METAL MACHINERY

REINER & CAMPBELL CO., Inc.

Post Office Box 5035, Newark 3, N. J.

Quick Set Dividers



Fastest and
most accurate on
the market. Two sizes
for circles up to 36" and
48". Removable steel points,
or pencil. No center punch.

RUBBER

LADDER SHOES

for safe climbing
... Order today.

JOHNSON
LADDER SHOE CO.



Eau Claire, Wisconsin

Rates for display space in the Service
Section are \$12.00 per inch per in-
sertion. One-inch minimum space ac-
cepted. Closing date — twentieth of
the month preceding issue.

... find what you need quickly
and economically through...

CLASSIFIED ADVERTISING

Rates for classified advertising are 12 cents for each word including heading
and address. One inch \$6.00. Count seven words for keyed address. Minimum
\$2.00 for each insertion. Cash must accompany order. Closing date 20th of
month preceding issue.

✓ AGENTS WANTED

MANUFACTURERS' REPRESENTATIVES: Territories open east of Mississippi River from Maine to Florida, including Great Lakes area and Louisiana. Full line gas fired heating equipment for wholesalers, floor furnaces, dual furnaces, forced air and gravity furnaces, and wall heaters. Good commissions, protected territory. Factory help. Address Key 1085, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

Manufacturer's Representative wanted
by AAA rated manufacturer of residen-
tial heating and air conditioning equip-
ment. We have a complete line backed
by the best sales program in the in-
dustry. For complete details write Key
1084, American Artisan, 6 North Michi-
gan Ave., Chicago 2, Ill.

NEW PROFIT-MAKER PLAN offered to Rep-
resentatives calling on Heating Contractors!
Sales made easy with complete line of compact,
trouble-free, easy-to-install, warm air gas or
oil, automatic furnaces. 3-point Profit Maker
Plan gives Higher Commissions, Better Dis-
counts, Account Protection, Sales Co-operation
and Assistance. Catalogs, Stuffers, Sales Aids
available. Write now! List lines and territories
covered. Address Key 1082, American Artisan,
6 North Michigan Ave., Chicago 2, Illinois.

✓ SITUATIONS OPEN

Sheet metal estimator and supervisor for fabri-
cation and installation of commercial and in-
dustrial ventilation and air conditioning. Ad-
dress Key 1079, American Artisan, 6 N. Michi-
gan Ave., Chicago 2, Ill.

✓ SITUATION WANTED

SALES ENGINEER AVAILABLE — 20
years experience heating industry sales,
service, and management. Desire territory
representing manufacturer. Will consider
engineering, service or training school de-
partment position. Married, 41 years of
age. Address Key 1083, American Artisan,
6 North Michigan Ave., Chicago 2, Ill.

✓ MISCELLANEOUS

DOUBLE YOUR INCOME from your news-
paper advertising by using our low-cost cartoons
on Plumbing, Heating & Air Conditioning. For
FREE proofs write LILLY CARTOON ADS,
Box 167, Long Beach, Calif.

CLASSIFIED ADVERTISING

Is the quick, economical way to find what
you're looking for. Check the classified
page each and every issue for real bar-
gains and hard to find items. It's a quick
and sensible means too, of disposing of
tools, equipment, and anything else for
which you no longer have use.

✓ BUSINESS OPPORTUNITIES

AVAILABLE AT ONCE

Successful heating and air conditioning busi-
ness in thriving suburb of one of Ohio's
major cities. Long established business with
complete tools and other shop equipment.
Owner forced to sell by reason of health.
Priced right.

Financial arrangements can be made with
responsible parties.

Address all replies to Key 1076, American
Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

For Sale — 2 1/4" x 14" floor perimeter registers,
etc. also baseboard perimeter, supply and re-
turn grilles, etc., for sale at HUGE SAVINGS,
by manufacturer, due to change in plant loca-
tion. Limited time. Rush orders or inquiries
Dept. #19, Key 1086, American Artisan, 6
North Michigan Ave., Chicago 2, Ill.

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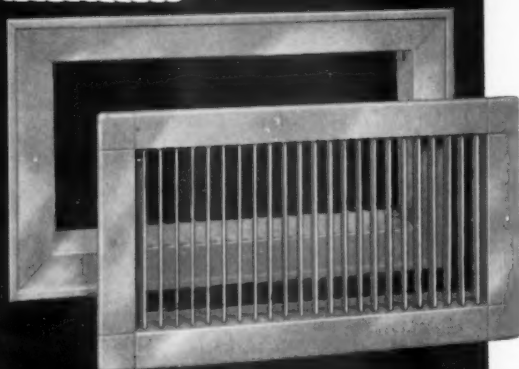
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NOW *A Thoroughly Practical*

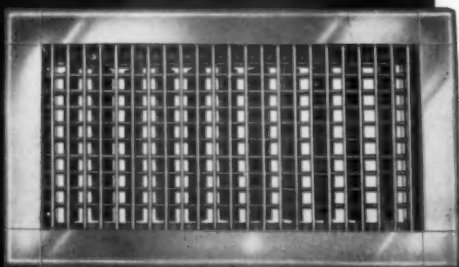
INSTALLATION FRAME FOR ALL COMMERCIAL TYPE

REGISTERS & GRILLES



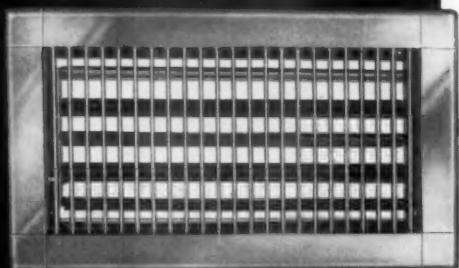
NO. 9 INSTALLATION FRAME

with No. 92V00 TRIPL-AIRE® GRILLE.



NO. 92 VHV TRIPL-AIRE® MULTI-DEFLECTION REGISTER

Vertical face bars, horizontal secondary bars, vertical louvers.



NO. 93V FIXT-AIRE® REGISTER

Vertical front bars set straight, horizontal louvers.

For quick, easy and solid installations under all conditions, or to meet special requirements, the H&C No. 9 Installation Frame has been developed for use with H&C TRIPL-AIRE and FIXT-AIRE commercial type registers and grilles. It may be installed either before or after plastering. In the former case, the frame overlaps the opening $1\frac{1}{2}$ " and protrudes from the wall $\frac{1}{4}$ ". Sponge rubber gasket prevents leakage. For a flush installation the frame is embedded in the plaster, the formed edge acting as a plaster lock.

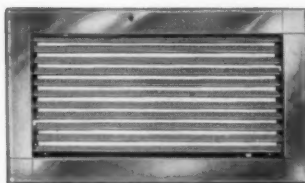


TRIPL-AIRE®

and FIXT-AIRE®

REGISTERS and GRILLES

Ideal for every type of commercial installation. They supply every possible combination of airflow deflections desirable (over 260 combinations from stock items alone). They're extremely well made and good looking. Finished in H&C DECORATOR-GRAY Available at all H&C Jobbers. Write for catalog with complete engineering data.



NO. 94A FIXT-AIRE® GRILLE

Horizontal face bars set at 22° angle to conceal duct.



HART & COOLEY MANUFACTURING COMPANY

500 EAST EIGHTH STREET, HOLLAND, MICHIGAN

IN CANADA: HART & COOLEY MANUFACTURING CO.

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121-115 for cooling
125-115 SPDT

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TEMPERATURE CONTROLS for MODERN COMFORT

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